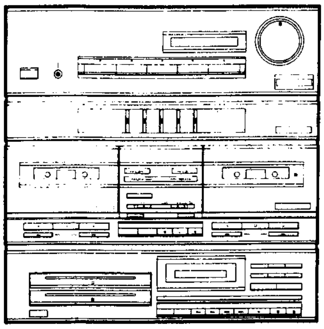
Service Manual

PIONEER
The future of sound and vision.



ORDER NO.
ARP1720

STEREO TWIN CD CASSETTE DECK AMPLIFIER

XD-Z62T

MODEL XD-Z62T HAS THREE VERSIONS:

Type	Power requirement	Export destination
HB	AC220V,240V (switchable)*	United Kingdom
HE	AC220V,240V (switchable)*	European continent
HEZ	AC220V,240V (switchable)*	West Germany

* Change the jumper wires of assembly boards.

- This manual is applicable to the XD-Z62T/HB and HE types.
- For the HE type, refer to page 22.
- For the other type,refer to additional servise manual.
- The XD-Z62T consists of a CD block and a deck amplifier block.
  For detailes, see page6. The CD block is descrived in pages24 to 84.
  The Deck amplifier block in pages85 to 149.
- Ce manuel pour le servise comprend les explications en françasis de réglage.
  (voir les pages59 à 71 pour le bloc CD, et les pages140 à 144 pour bloc de l'amplificateur.)
- Este manual de servicio trata del métode ajuste escrite en español.
  (Vea las páginas72 a 84 para el bloque de CD, y las páginas 145 a 149 para el bloque del amplificador/grabadora.)

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9. CD BLOCK 24
10. DECK AMPLIFIER BLOCK 85

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1. SAFETY INFORMATION

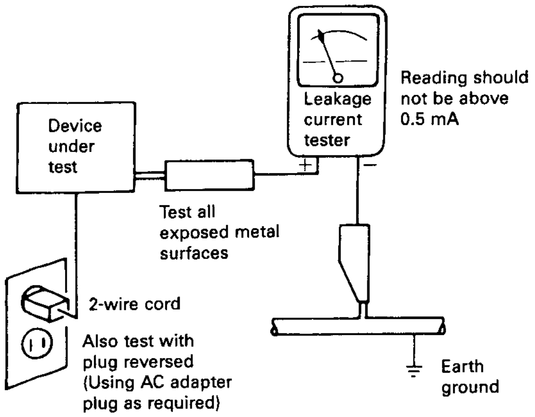
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120 V AC 60 Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5 mA.


Device under test
Leakage current tester
Reading should not be above 0.5 mA
+
−
Test all exposed metal surfaces
2-wire cord
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.

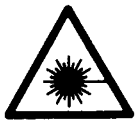
The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

(FOR EUROPEAN MODEL ONLY)

VAROITUS!

LAITE SISÄLTÄÄ LASERDIODIN, JOKA LÄHETTÄÄ NÄKYMÄTÖNTÄ, SILMILLE VAARALLISTA INFRAPUNASÄTEILYÄ LAITTEEN SISÄLLÄ ON LASERDIODIN LÄHEISYYDESSÄ KUVAN 1. MUKAINEN VAROITUSMERKKI.



LASER
Kuva 1
Lasersateilyn varoitusmerkki

ADVERSEL:

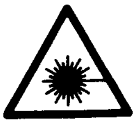
USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSAETTELSE FOR STRÅLING.

VIKTIGT

APARATEN INNEHÅLLER LASER AV HÖGRE KLASS ÄN 1. INGREPP I APPARATEN BÖR GÖRAS AV SPECIELLT UTBILDAD PERSONAL.

WARNING!

DEVICE INCLUDES LASER DIODE WHICH EMITS INVISIBLE INFRARED RADIATION WHICH IS DANGEROUS TO EYES. THERE IS A WARNING SIGN ACCORDING TO PICTURE 1 INSIDE THE DEVICE CLOSE TO THE LASER DIODE.

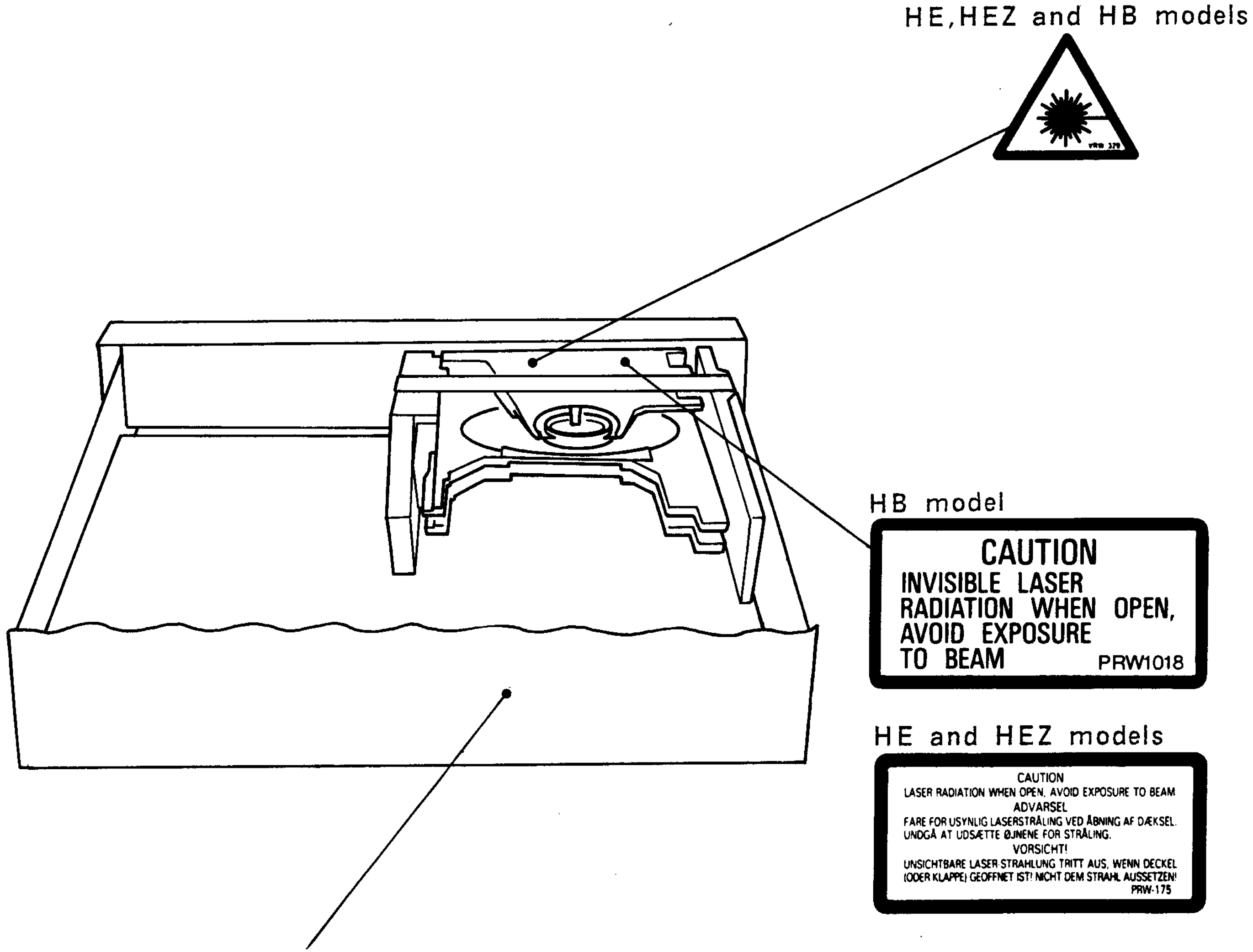


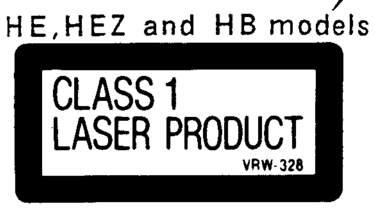
LASER
Picture 1
Warning sign for laser radiation

IMPORTANT

THIS PIONEER APPARATUS CONTAINS LASER OF HIGHER CLASS THAN 1. SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

LABEL CHECK


HE,HEZ and HB models
HB model
CAUTION
INVISIBLE LASER
RADIATION WHEN OPEN,
AVOID EXPOSURE
TO BEAM
PRW1018
HE and HEZ models
CAUTION
LASER RADIATION WHEN OPEN, AVOID EXPOSURE TO BEAM
ADVARSEL
FARE FOR USYNLIG LASERSTRÅLING VED ÅBNING AF DÆKSEL.
UNDGÅ AT UDSÆTTE ØJNENE FOR STRÅLING.
VORSICHT!
UNSICHTBARE LASER-STRAHLUNG TRITT AUS, WENN DECKEL
(ODER KLAPPE) GEOFFNET IST! NICHT DEM STRAHL AUSSETZEN!
PRW-175


HE,HEZ and HB models
CLASS 1
LASER PRODUCT
VRW-328

Additional Laser Caution

1. Laser Interlock Mechanism
   The ON/OFF state of the U (S601) and L (S603) switches for detecting the disc clamp state is detected by the system microprocessor, and the design prevents laser diode oscillation when both switches U and L are OFF (H).
   Thus, the interlock will no longer function if switches U (S601) and L (S603) are deliberately shorted. Laser diode oscillation continues when pin 4, 5, or 29 of CXA1081S (IC1) is connected to ground or the terminals of Q1 are shorted to each other (fault condition).

2. If the fault condition described in 1 is induced with the cover open, close viewing of the objective lens with the naked eye will cause exposure to a Class 1 or higher laser beam.

2. SPECIFICATIONS

Twin CD cassette deck amplifier: XD-Z62T

Amplifier section

DIN music power	50 W + 50 W (1 kHz, T.H.D. 1%, 8 ohms)
Continuous power output (DIN)	33 W + 33 W (1 kHz, T.H.D. 1%, 8 ohms)
Graphic equalizer frequency band	100 Hz, 330 Hz, 1 kHz, 3.3 kHz, 10 kHz, ±7 dB
Hum and Noise (DIN, continuous Power/50 mW)	
PHONO	68 dB/60 dB
Total Harmonic Distortion (40 Hz to 20,000 Hz, 15 W, 8 ohms)**	No more than 0.2%

Tape Deck Section

Systems	4 track, 2-channel stereo
Heads	Recording/playback head x 1 Playback head x 1 Erasing head x 1
Motor	DC servo 2 speed motor x 2
Wow and Flutter	No more than 0.09% (WRMS)
Fast Winding Time	Approximately 95 seconds (C-60 tape)
Frequency Response (– 20 dB recording):	
Normal tape	35 Hz to 14,000 Hz ±6 dB
CrO₂ tape	35 Hz to 15,000 Hz ± 6 dB
Signal-to-noise ratio	
Dolby NR OFF	56 dB
Noise Reduction Effect	
Dolby B type NR ON	More than 10 dB (at 5 kHz)

Compact disc player section

Type	Compact disc digital audio system
Usable discs	Compact Disc
DA conversion format	16-bit linear
Frequency response	4 Hz – 20 kHz ($^{+0.5}_{-1.0}$ dB) (EIAJ)
SN ratio	more than 100 dB (EIAJ)
Dynamic range	more than 92 dB (EIAJ)
Channel separation	more than 91 dB (EIAJ)
Wow and flutter	less than (±0.001% W.PEAK) (below measurable level) (EIAJ)
Channels	2-channel (stereo)

Furnished Parts

Operating Instructions	1
Remote control unit	1
Dry cell batteries	2

Miscellaneous

Power requirements	a.c. 240 Volts ~, 50/60 Hz
Power consumption	200 W
Dimensions	360 (W) × 360 (H) × 340.5 (D) mm
Weight (without package)	11.7 kg

Accessories

EP Adaptor	1

- *Specifications and design subject to possible modification without notice due to improvement.*

*** Measured By Audio Spectrum Analyser.*

3

Pa

Ma

4. CONFIGURATIONS OF CD BLOCK AND DECK AMPLIFIER BLOCK

Electrical configurations of the CD block and deck amplifier block are shown in "4.2 OVER ALL SCHEMATIC DIAGRAM" (page9). Mechanism configurations of them are shown in "4.1 EXPLODED VIEWS AND PARTS LIST" (page7). See the following pages respectively.
See the following pages respective blocks.

9. CD BLOCK (Page24 ~ Page84)

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9.2 P.C.BOARDS LOCATION ········ 30
9.3 SCHEMATIC DIAGRAM ········ 31
9.4 P.C.BOARDS CONNECTION DIAGRAM ······ 35
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9.6 RÉGLAGE ········ 59
9.6 AJUSTE ········ 72

10. DECK AMPLIFIER BLOCK (Page85~Page149)

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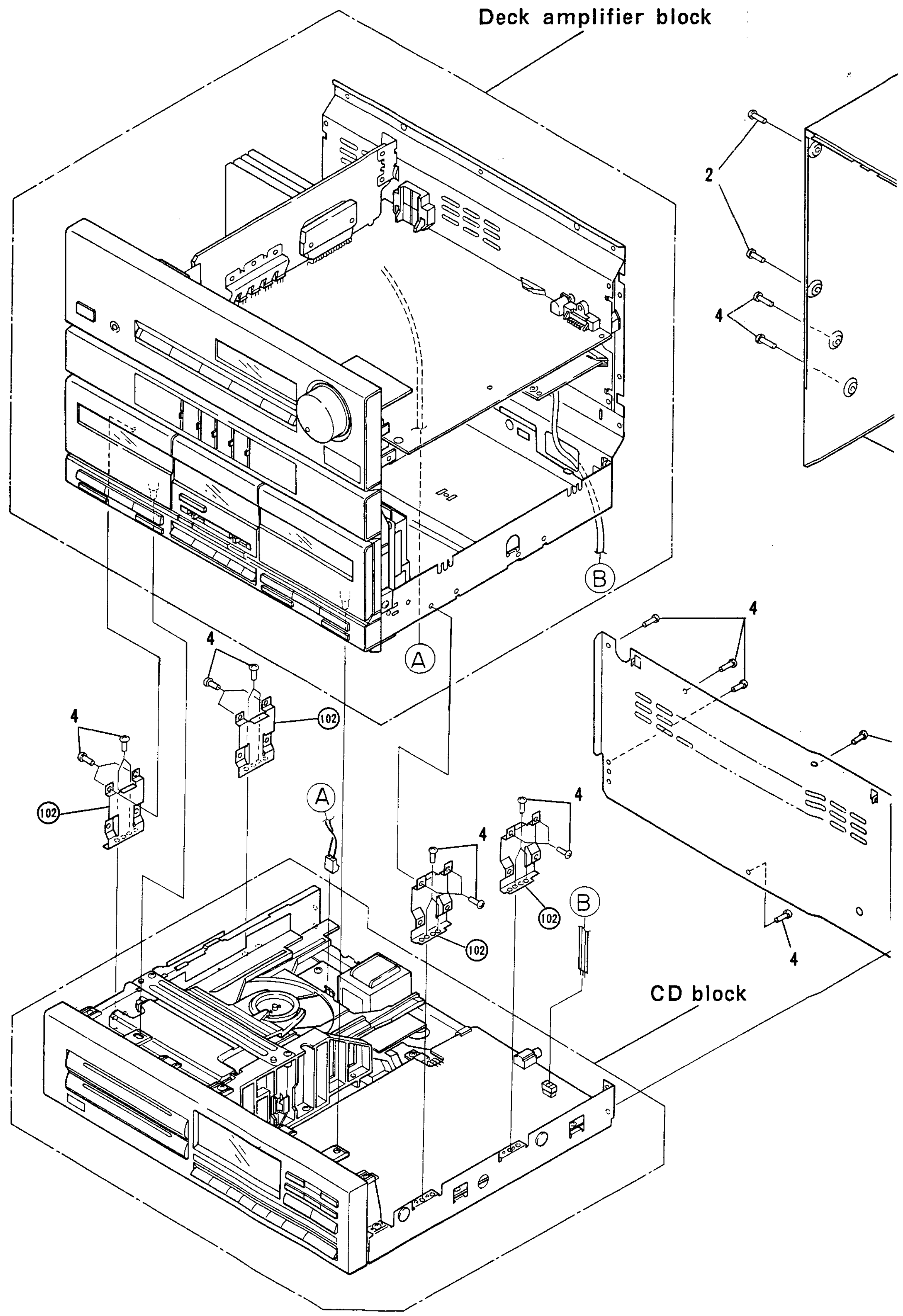
10.5 RÉGLAGE ········ 140
10.5 AJUSTE ········ 145

4.1 EXPLODED VIEWS AND PARTS LIST



2. SPECIFICATIONS

Twin CD cassette deck amplifier: XD-Z62T

Amplifier section

DIN music power	50 W + 50 W (1 kHz, T.H.D. 1%, 8 ohms)
Continuous power output (DIN)	33 W + 33 W (1 kHz, T.H.D. 1%, 8 ohms)
Graphic equalizer frequency band	100 Hz, 330 Hz, 1 kHz, 3.3 kHz, 10 kHz, ±7 dB
Hum and Noise (DIN, continuous Power/50 mW) PHONO	68 dB/60 dB
Total Harmonic Distortion (40 Hz to 20,000 Hz, 15 W, 8 ohms)**	No more than 0.2%

Tape Deck Section

Systems	4 track, 2-channel stereo
Heads	Recording/playback head x 1 Playback head x 1 Erasing head x 1
Motor	DC servo 2 speed motor x 2
Wow and Flutter	No more than 0.09% (WRMS)
Fast Winding Time	Approximately 95 seconds (C-60 tape)
Frequency Response (– 20 dB recording):	
Normal tape	35 Hz to 14,000 Hz ±6 dB
CrO_2 tape	35 Hz to 15,000 Hz ± 6 dB
Signal-to-noise ratio Dolby NR OFF	56 dB
Noise Reduction Effect Dolby B type NR ON	More than 10 dB (at 5 kHz)

Compact disc player section

Type	Compact disc digital audio system
Usable discs	Compact Disc
DA conversion format	16-bit linear
Frequency response	4 Hz – 20 kHz ($^{+0.5}_{-1.0}$ dB) (EIAJ)
SN ratio	more than 100 dB (EIAJ)
Dynamic range	more than 92 dB (EIAJ)
Channel separation	more than 91 dB (EIAJ)
Wow and flutter	less than (±0.001% W.PEAK) (below measurable level) (EIAJ)
Channels	2-channel (stereo)

Furnished Parts

Operating Instructions	1
Remote control unit	1
Dry cell batteries	2

Miscellaneous

Power requirements	a.c. 240 Volts ~, 50/60 Hz
Power consumption	200 W
Dimensions	360 (W) × 360 (H) × 340.5 (D) mm
Weight (without package)	11.7 kg

Accessories

EP Adaptor	1

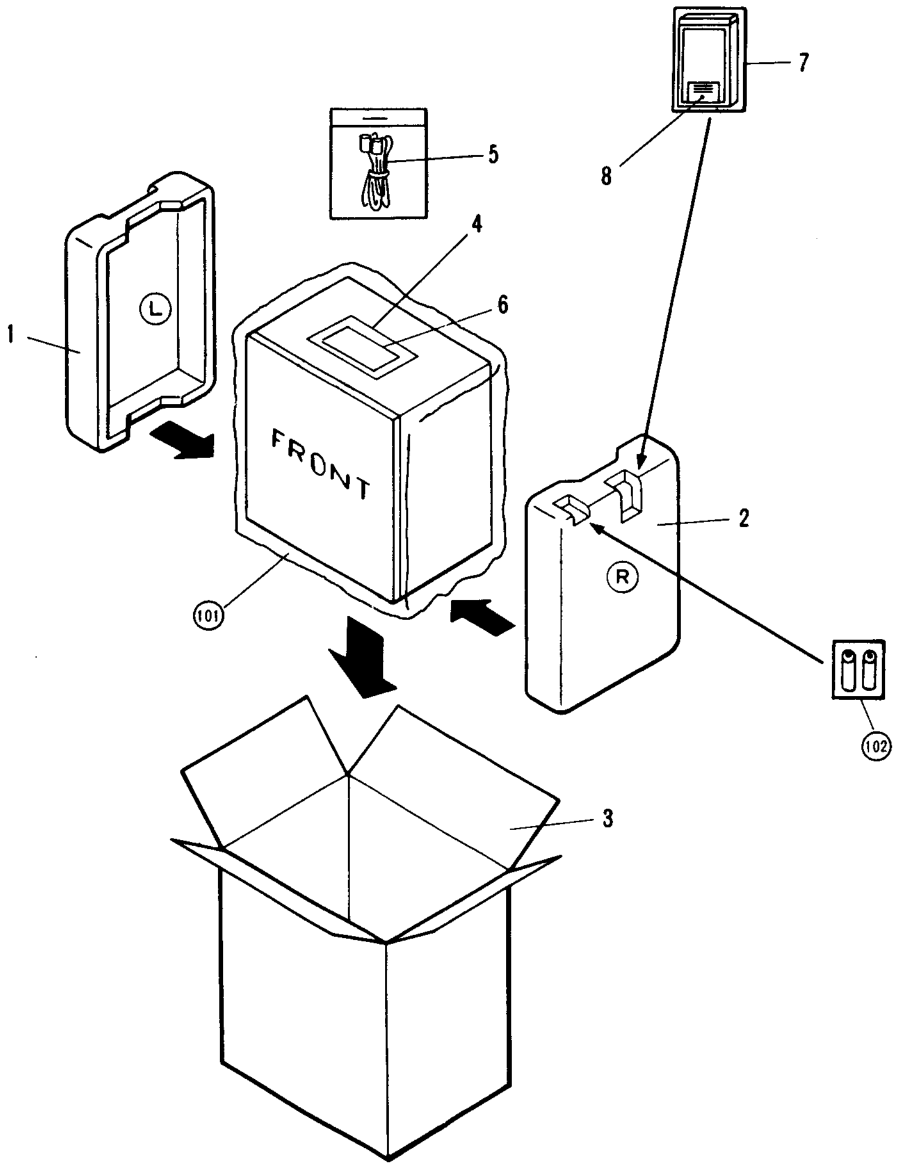
- *Specifications and design subject to possible modification without notice due to improvement.*

*** Measured By Audio Spectrum Analyser.*

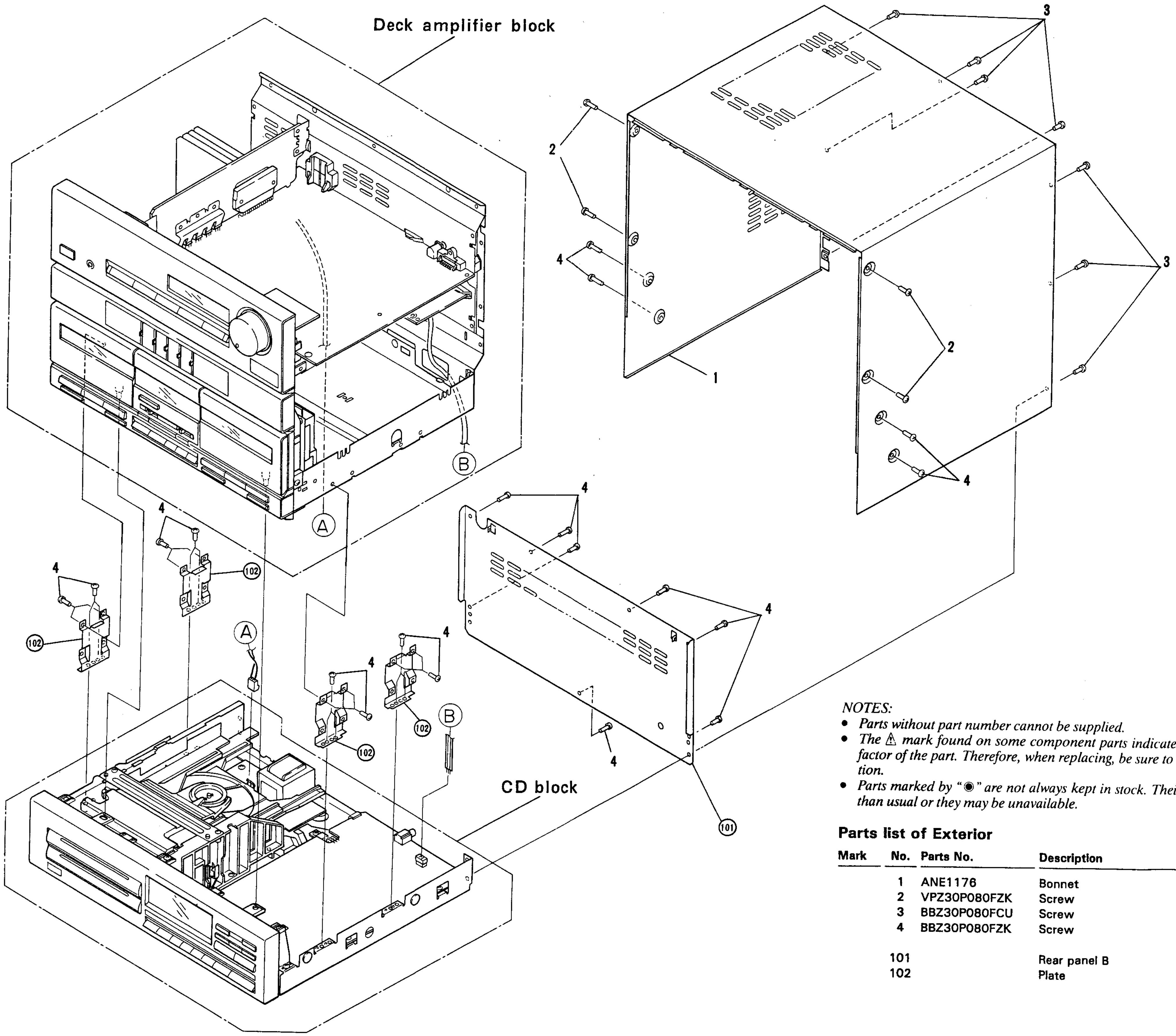
3. PACKING

Parts list of packing

Mark	No.	Parts No.	Description
	1	AHA1237	Pad (L)
	2	AHA1238	Pad (R)
	3	AHD1589	Packing case
	4	ARB1158	Operating instruction
	5	ADE-085	Connection cord with mini plug
	6	ARM1003	Caution card
	7	AXD1088	Remote control unit
	8	AZN1856	Battery cover
	9	PHC1043	Spacer (in the tray 2)
	101		Sheet
	102		Battery



4.1 EXPLODED VIEWS AND PARTS LIST

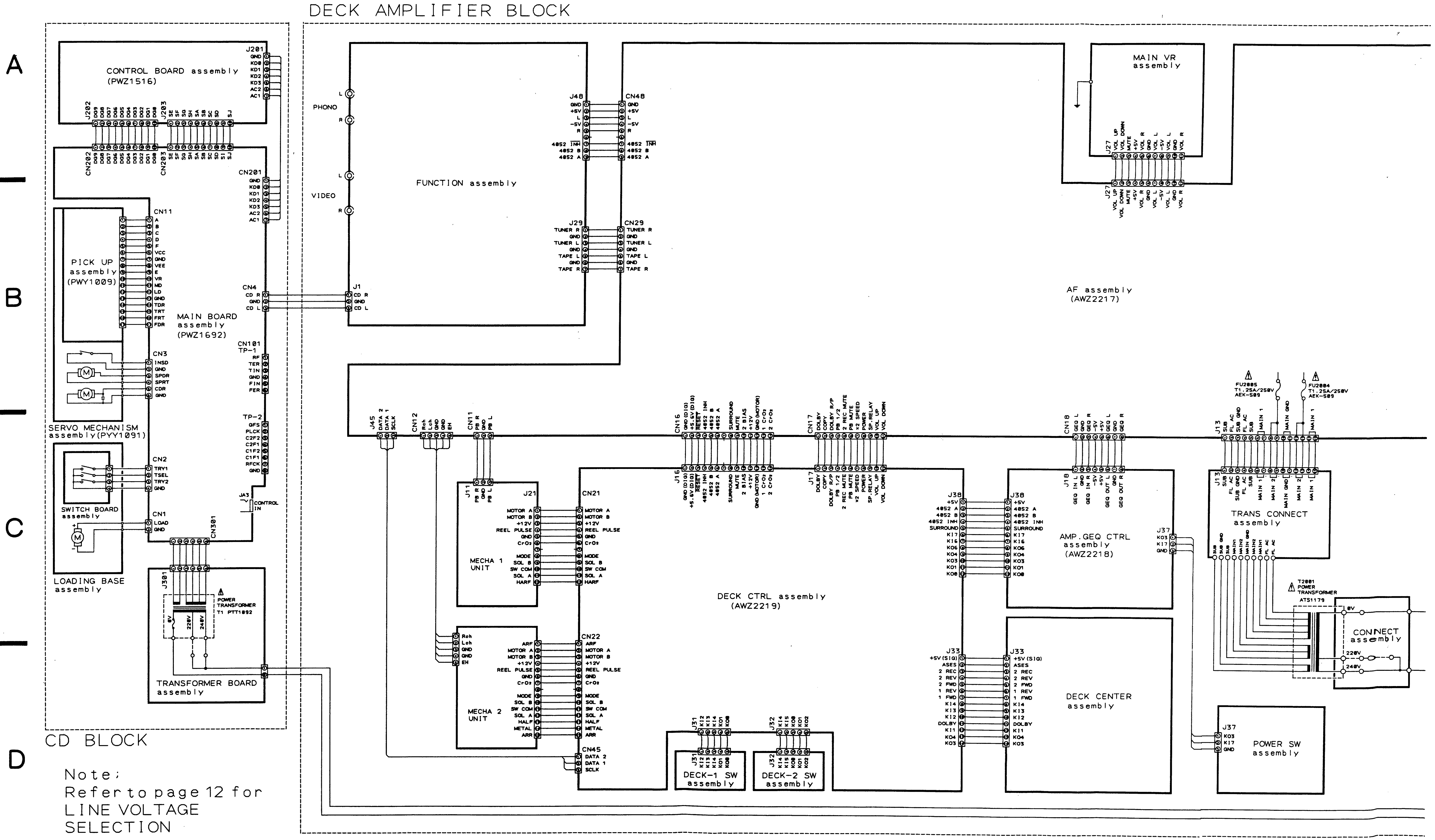


NOTES:
- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

Parts list of Exterior

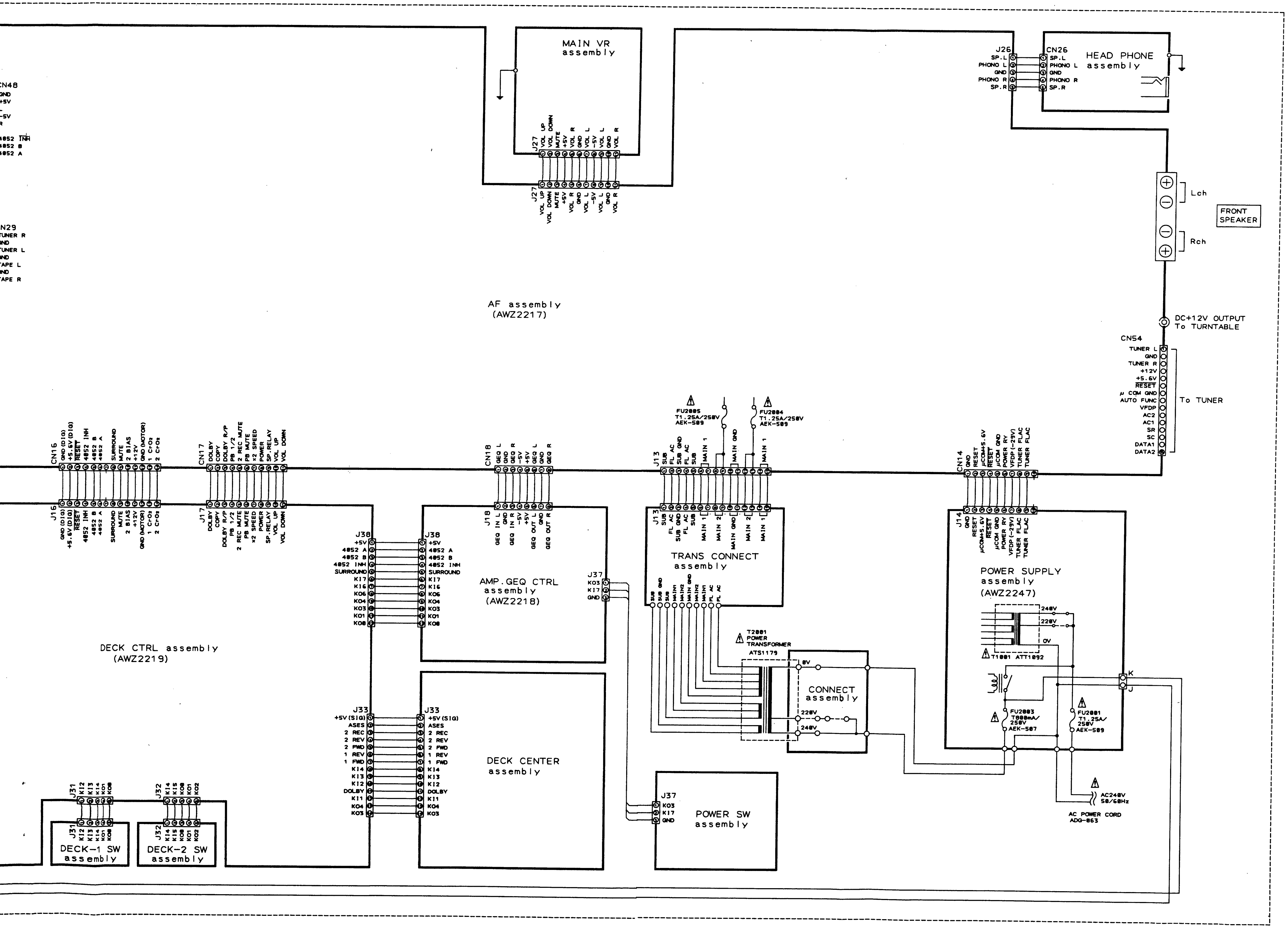
Mark	No.	Parts No.	Description
	1	ANE1176	Bonnet
	2	VPZ30P080FZK	Screw
	3	BBZ30P080FCU	Screw
	4	BBZ30P080FZK	Screw
	101		Rear panel B
	102		Plate

4.2 OVER ALL SCHEMATIC DIAGRAM



1
2
3
4
5
6
A
B
C
D
DECK AMPLIFIER BLOCK
CD BLOCK
CONTROL BOARD assembly
(PWZ1516)
J201
J202
J203
CN202
CN203
CN201
PICK UP assembly
(PWY1009)
CN11
MAIN BOARD assembly
(PWZ1692)
CN3
SERVO MECHANISM assembly(PYY1091)
SWITCH BOARD assembly
CN2
LOADING BASE assembly
CN1
CN4
CN101 TP-1
TP-2
JA3
CONTROL IN
CN301
J301
POWER TRANSFORMER
T1 PTT1092
TRANSFORMER BOARD assembly
PHONO
VIDEO
FUNCTION assembly
J48
CN48
J29
CN29
J1
MAIN VR assembly
J27
AF assembly
(AWZ2217)
J45
CN12
CN11
CN16
CN17
CN18
J13
FU2005
T1.25A/250V
AEK-509
FU2004
T1.25A/250V
AEK-509
J11
J21
CN21
MECHA 1 UNIT
MECHA 2 UNIT
CN22
CN45
J16
J17
J18
DECK CTRL assembly
(AWZ2219)
J38
AMP.GEQ CTRL assembly
(AWZ2218)
J37
TRANS CONNECT assembly
T2001
POWER TRANSFORMER
ATS1179
CONNECT assembly
6V
220V
240V
J33
DECK CENTER assembly
J31
DECK-1 SW assembly
J32
DECK-2 SW assembly
POWER SW assembly

Note;
Refer to page 12 for
LINE VOLTAGE
SELECTION


MAIN VR assembly
J27
VOL UP
VOL DOWN
MUTE
+5V
VOL R
GND
VOL L
-5V
VOL L
GND
VOL R
J26
SP.L
PHONO L
GND
PHONO R
SP.R
CN26
HEAD PHONE assembly
Lch
Rch
FRONT SPEAKER
AF assembly (AWZ2217)
DC+12V OUTPUT To TURNTABLE
CN54
TUNER L
GND
TUNER R
+12V
+5.6V
RESET
μ COM GND
AUTO FUNC
VFDP
AC2
AC1
SR
SC
DATA1
DATA2
To TUNER
CN48
CN29
TUNER R
TUNER L
TAPE L
TAPE R
CN16
J16
CN17
J17
CN18
J18
CN13
J13
CN14
J14
FU2005 T1.25A/250V AEK-509
FU2004 T1.25A/250V AEK-509
J38
J37
J33
J31
J32
AMP.GEQ CTRL assembly (AWZ2218)
TRANS CONNECT assembly
POWER SUPPLY assembly (AWZ2247)
DECK CTRL assembly (AWZ2219)
DECK CENTER assembly
POWER SW assembly
CONNECT assembly
DECK-1 SW assembly
DECK-2 SW assembly
T2001 POWER TRANSFORMER ATS1179
T1001 ATT1092
FU2003 T800mA/250V AEK-507
FU2001 T1.25A/250V AEK-509
AC240V 50/60Hz
AC POWER CORD ADG-063
240V
220V
0V
K
J

1. RESISTORS:
Indicated in Ω, ¼W, ⅛W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ±10% (M); ±20% tolerance

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
▭ : Signal voltage at (33 W + 33 W 8Ω)output (1kHz)
▭ : DC voltage (V) at no input signal
Value in ( ) is DC voltage at rated power.
⇦ mA : DC current at no input signal

4. OTHERS:
➡ : Signal route.
⊘ : Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
⁒ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

SWITCHES:

CD Block
MAIN BOARD assembly(PWZ1692)
S1 Tact SW

CONTROL BOARD assembly(PWZ1516)
S201S-S216 Tact SW

SWITCH BOARD assembly
S601-S603 Slide SW

Deck amplifier Block
AMP,GEQ CTRL assembly(AWZ2218)
S701-S705 Tact SW

DECK-1 SW assembly
S811-S815 Tact SW

DECK-2 SW assembly
S821-S825 Tact SW

DECK CENTER assembly
S847 Dolby ON-OFF
S848 Reverse mode
S841-S846 Tact SW

POWER SW assembly
S707 Power

The underline indicates the switch position.

5. LINE VOLTAGE SELECTION FOR HB, HE AND HEZ TYPES

- Line voltage can be changed with the following steps.

1. Disconnect the AC power cord.
2. Remove the bonnet and separate the deck amplifier block and the CD block.
3. CD block (TRANSFORMER BOARD assembly); change the position of the wire Ⓕ as follows.

Voltage	Jumper Ⓕ position
220V	①
240V	②

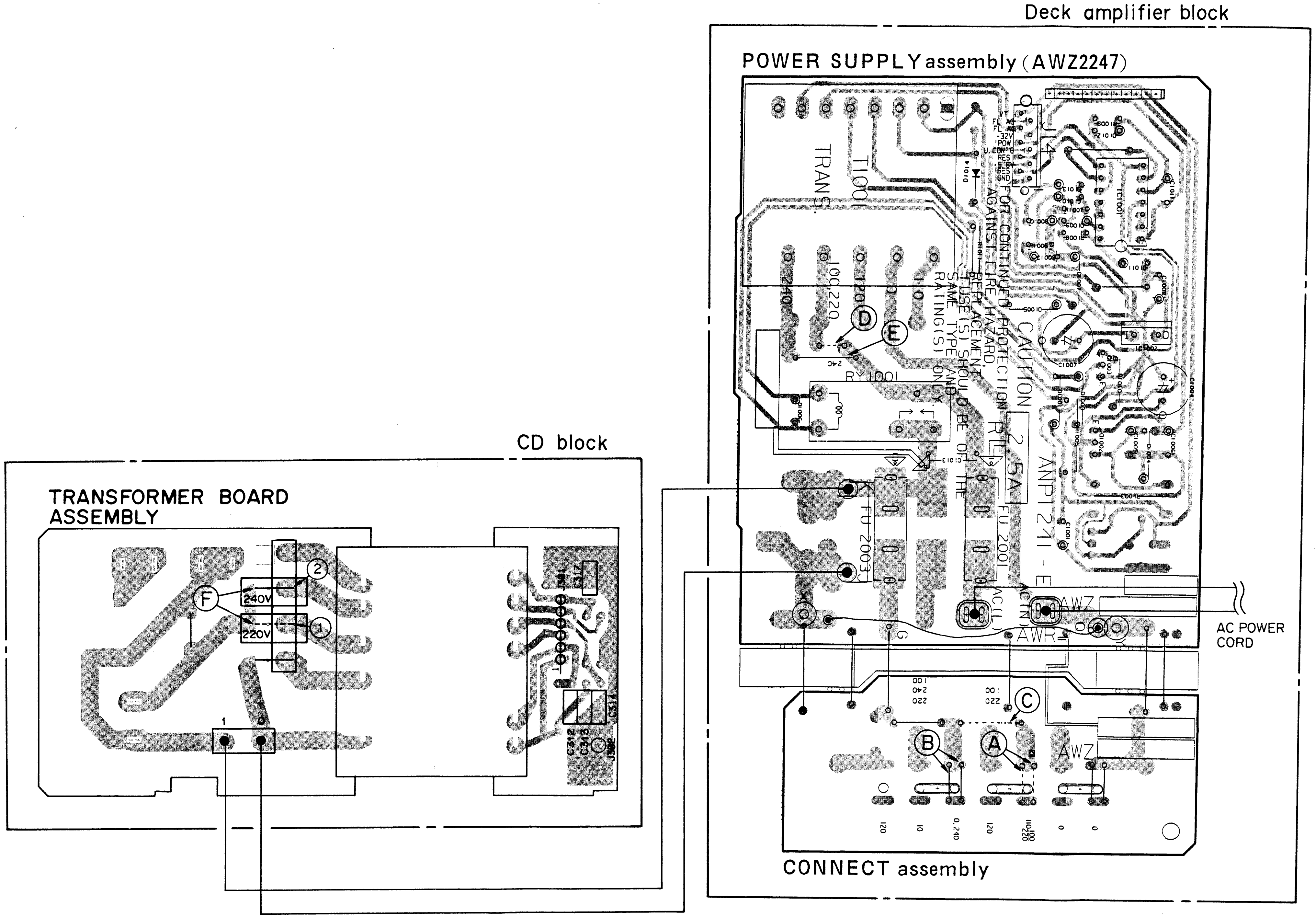
Deck amplifier block (POWER SUPPLY assembly); Change the position of the jumper wires Ⓐ-Ⓔ as follows.

Jumper wire \ Voltage	220V	240V
Ⓐ	○	×
Ⓑ	×	○
Ⓒ	○	×
Ⓓ	○	×
Ⓔ	×	○

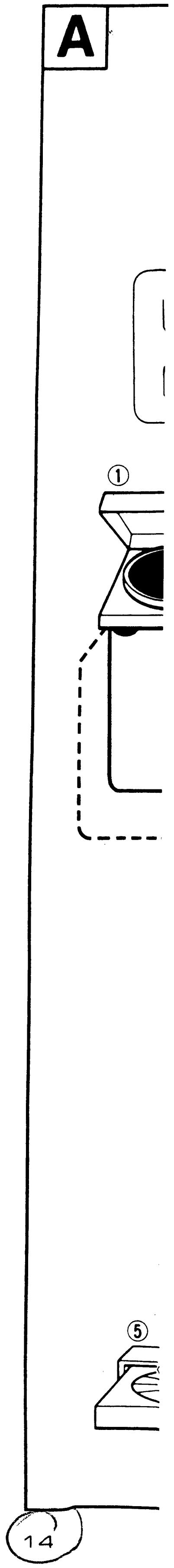
○: Be needed
×: Be needless

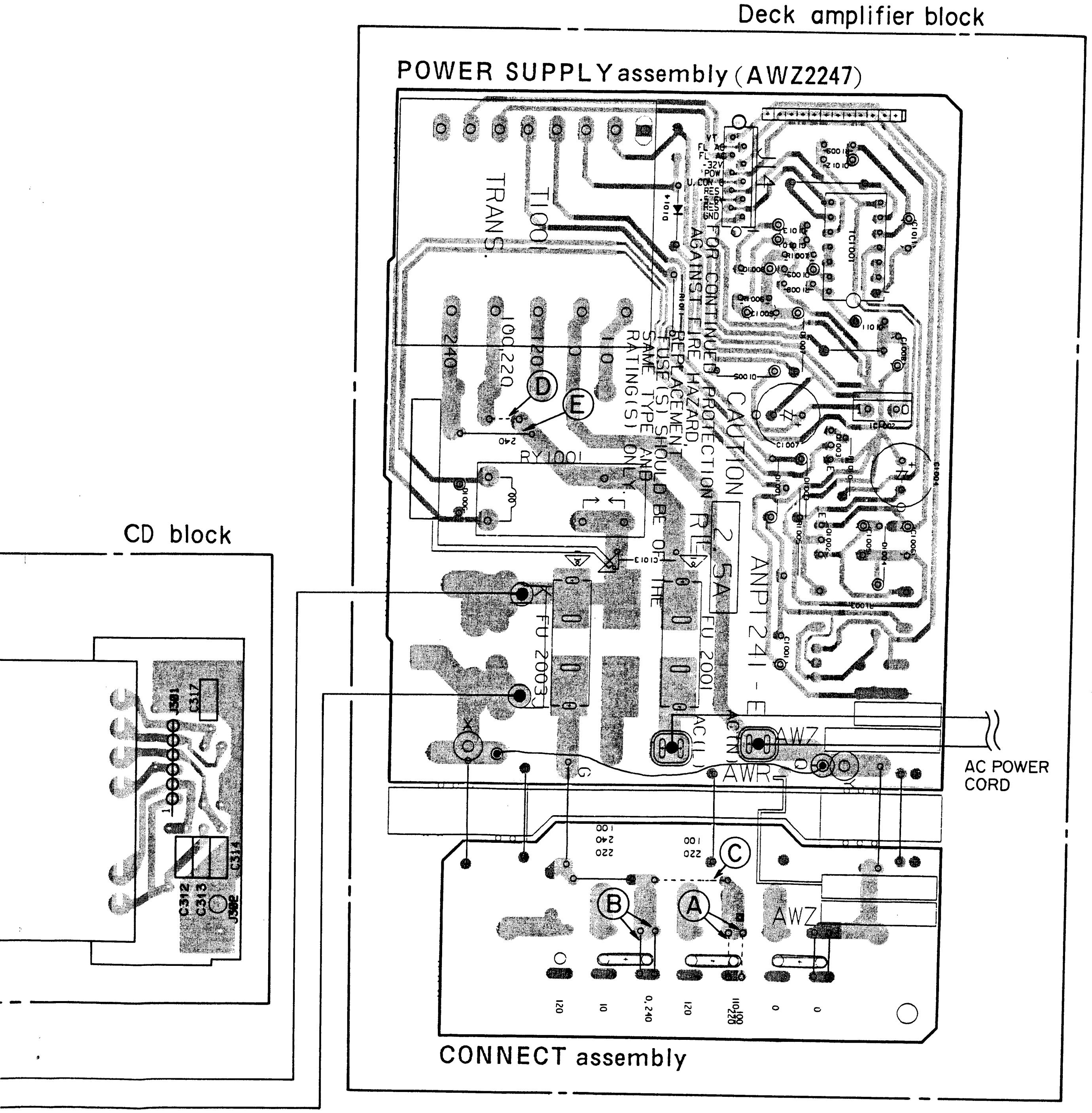
4. Stick the line volage label on the rear panel.

Description	Part No.
220Vlabel	AAX-193
240Vlabel	AAX-192

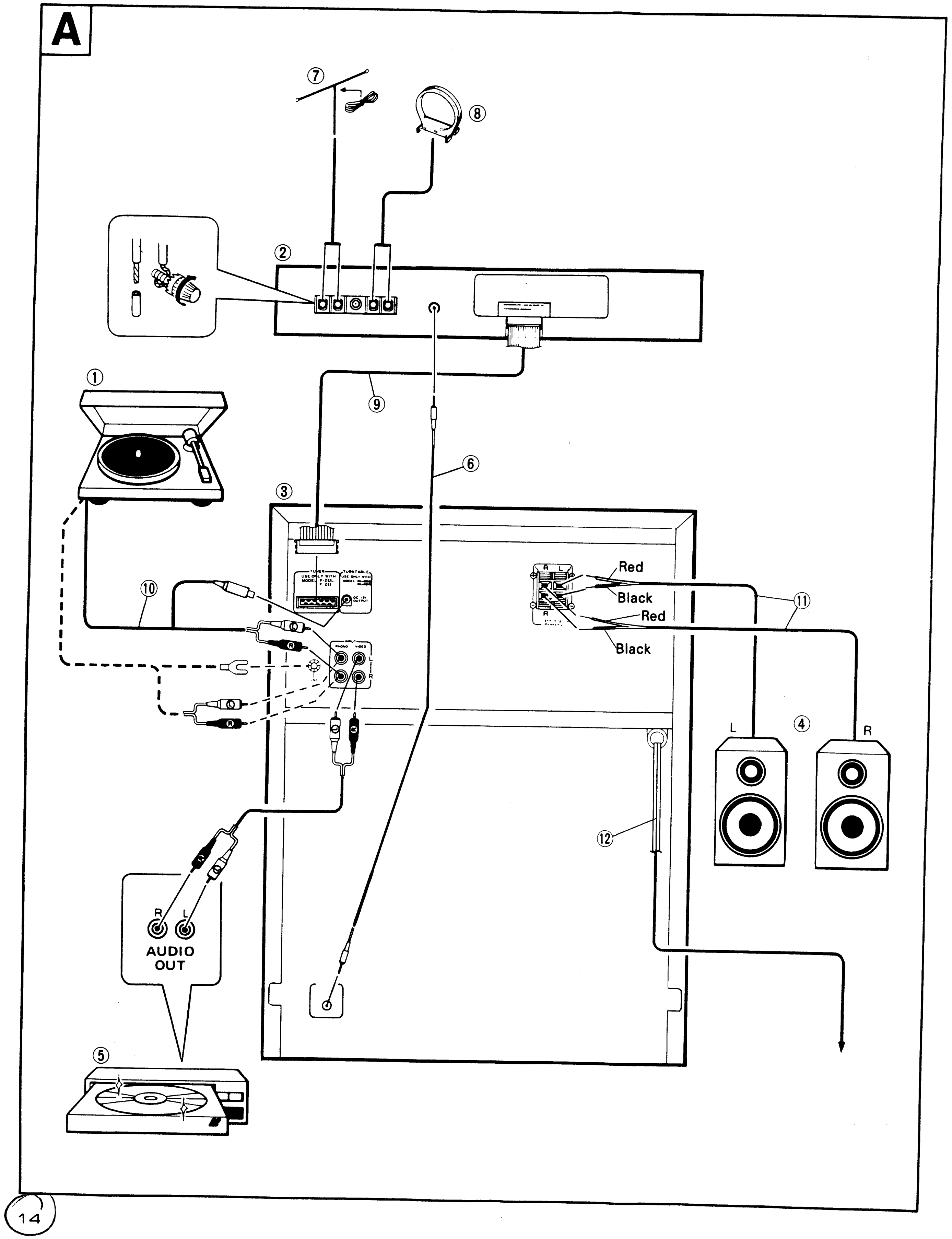

Deck amplifier block
POWER SUPPLY assembly (AWZ2247)
CD block
TRANSFORMER BOARD ASSEMBLY
F
240V
220V
2
1
A
B
C
D
E
CONNECT assembly
AC POWER CORD
CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACEMENT FUSE(S) SHOULD BE OF THE SAME TYPE AND RATING(S) ONLY.
T100 TRANS
RY1001
FU 2003
FU 2001
2.5A
ANP1241-E
AWZ
AWR

6. CON




Deck amplifier block
POWER SUPPLY assembly (AWZ2247)
CD block
CONNECT assembly
AC POWER CORD
CAUTION
FOR CONTINUED PROTECTION
AGAINST FIRE HAZARD
REPLACEMENT FUSE(S) SHOULD BE OF THE
SAME TYPE AND RATING(S) ONLY.
T100
TRANS
RY1001
FU 2003
FU 2001
ANP1241-E
2.5A
AWZ
AWR
A
B
C
D
E
240
100 220
120
J301
C317
C312
C313
C314
J302

6. CONNECTIONS


A
⑦
⑧
②
①
⑨
⑥
③
⑩
⑪
Red
Black
Red
Black
④
L
R
⑫
R
L
AUDIO OUT
⑤

① Turntable (separated sold PL-Z82 or PL-Z92)
② FM/AM tuner (F-Z92L)
③ Twin CD cassette deck amplifier
④ Speaker system
⑤ Video disc player or Video cassette recorder, etc.
⑥ CD player control cord
⑦ Accessory FM T-type antenna
⑧ Accessory AM loop antenna
⑨ Tuner input/output cord
⑩ Turntable output cord
⑪ Speakers cord
⑫ Power cord

Plug the power cord into the AC wall socket outlet only after all the connections have been completed.

Proceed as follows with the set-up and connections.

1. **Place the tuner on top of the twin CD cassette deck amplifier.**
2. **Connect the tuner input/output cord ⑨ to twin CD cassette deck amplifier.**
   TUNER CONNECTION (Page 4, diagram B)
   Insert the connector until it locks, thus ensuring that it is connected. When disconnecting the connector, pull it in the opposite direction while pressing the left and right claws.
3. **Connect the FM antenna ⑦ and the AM antenna ⑧ to the tuner's antenna terminals.**
4. **Connect CD PLAYER CONTROL OUT jack of the tuner to CONTROL IN jack of twin CD cassette deck amplifier with accessories control cord ⑥ of twin CD cassette deck amplifier.**
5. **Place the turntable on top of the tuner.**
6. **Connect the turntable's cords ⑩ to the twin CD cassette deck amplifier's jacks.**
   If using this unit together with the optional PL-Z82 or PL-Z92, connect the turntable's audio cords and power supply cord respectively to the cassette tape deck amplifier's PHONO jacks and DC 12V OUTPUT jack.
   If using a different turntable, connect the audio cord and earth cord.
7. **Use the "VIDEO" jacks for connection to the audio output jacks of a video disc player or VCR.**

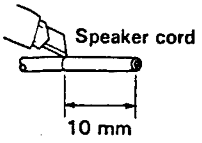
NOTE:

- *Insert the plugs securely into the jacks. Improper connection can lead to sound distortion or malfunctioning.*
- *The white plug is for the left channel connection and the red plug for the right channel connection.*

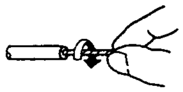
8. **Connect the speaker cords ⑪ to the SPEAKERS terminals.**
   Connect the "+" terminals on the twin CD deck amplifier to the "+" terminals on the speakers, the "−" terminals on the twin CD deck amplifier with the "−" terminals on the speakers.

Connecting the speaker cords

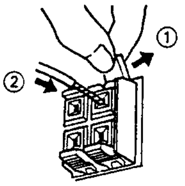
1. Cutter



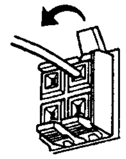
2. Twist the strands



3. Push toward the outside



4. Push toward the inside



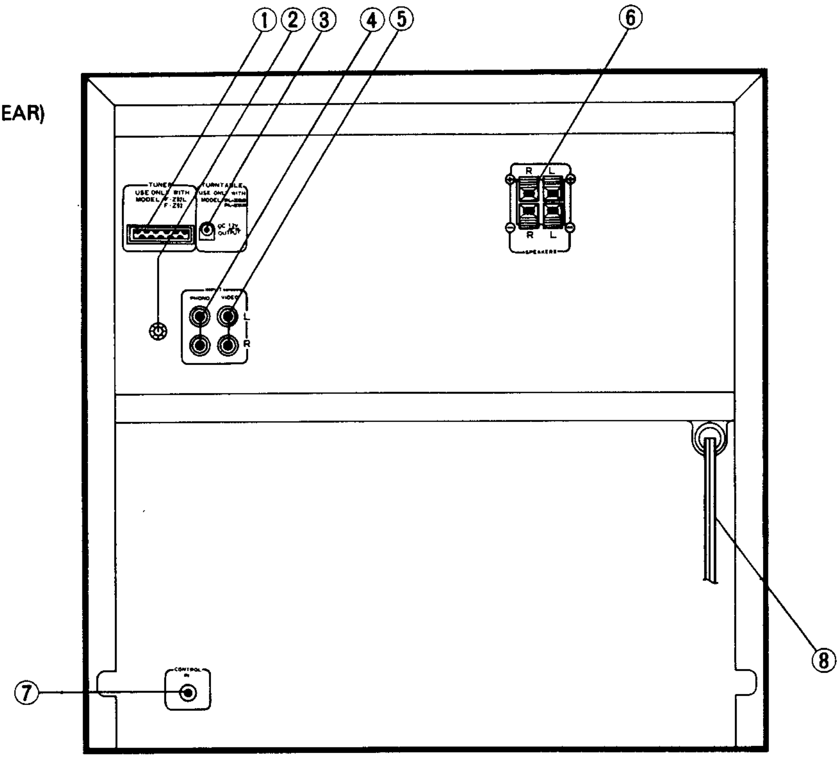
NOTE:
Do not allow the conductors of the cords to project beyond the terminals and to come into contact with other conductors. A breakdown or failure may occur when conductors touch one another.

Speaker impedance
Connect speaker systems with a nominal impedance of between 6 and 16 ohms.

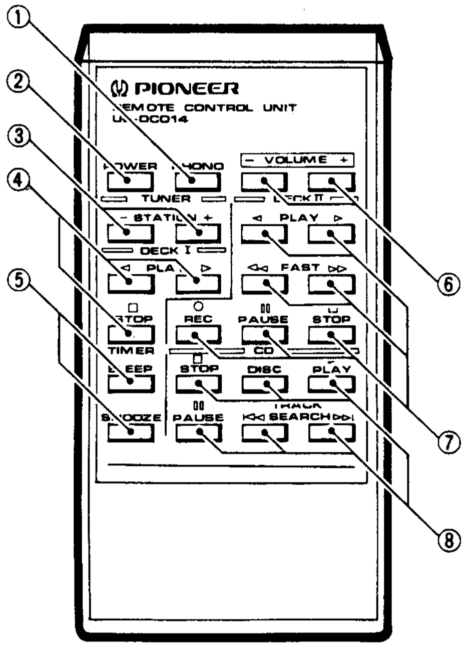
9. **Finally, connect the power cord ⑫ to the AC wall socket.**

7. PANEL FACILITIES

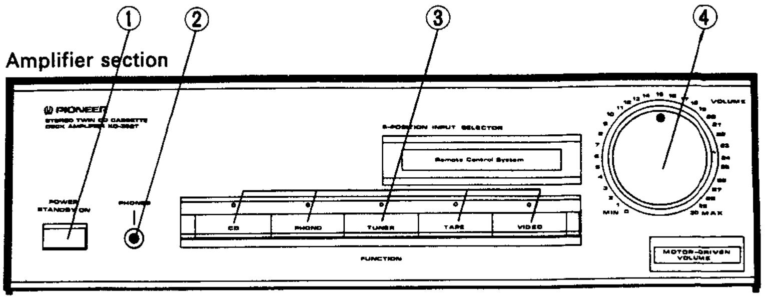
XD-Z62T (REAR)


①
②
③
④
⑤
⑥
⑦
⑧
TUNER
USE ONLY WITH MODEL F-Z62L F-Z62
TURNTABLE
USE ONLY WITH MODEL
DC 12V OUTPUT
INPUT
PHONO
VIDEO
L
R
SPEAKERS
CONTROL IN

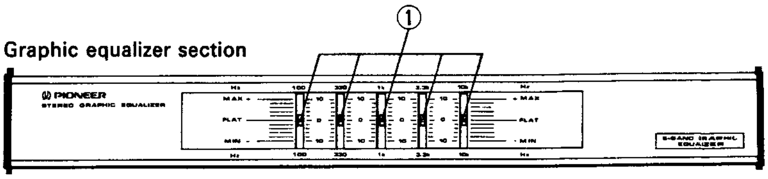
Remote control unit


①
②
③
④
⑤
⑥
⑦
⑧
PIONEER
REMOTE CONTROL UNIT
CU-DC014
POWER
PHONO
− VOLUME +
TUNER
DECK II
− STATION +
◁ PLAY ▷
DECK I
◁ PLAY ▷
◁◁ FAST ▷▷
STOP
REC
PAUSE
STOP
TIMER
CD
SLEEP
STOP
DISC
PLAY
TRACK
SNOOZE
PAUSE
SEARCH

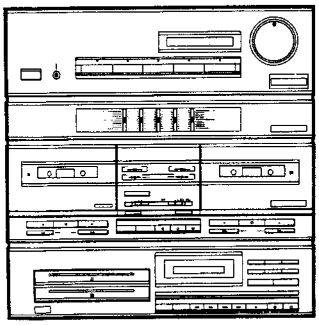
Amplifier section


①
②
③
④
PIONEER
STEREO TWIN CD CASSETTE DECK AMPLIFIER XD-Z62T
5-POSITION INPUT SELECTOR
Remote Control System
POWER STANDBY/ON
PHONES
CD
PHONO
TUNER
TAPE
VIDEO
FUNCTION
VOLUME
MIN
MAX
MOTOR-DRIVEN VOLUME

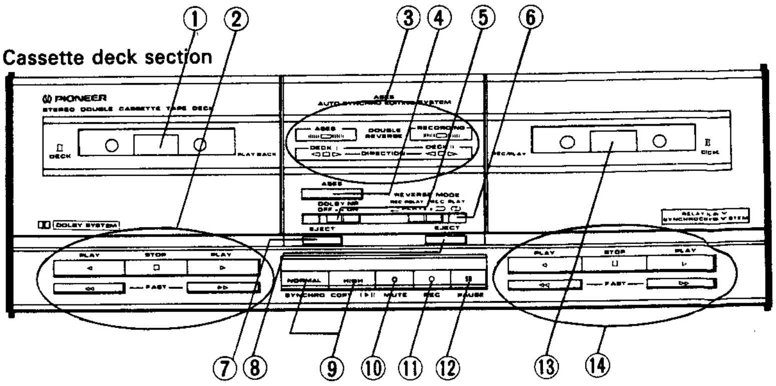
Graphic equalizer section


①
PIONEER
STEREO GRAPHIC EQUALIZER
Hz
100
330
1k
3.3k
10k
MAX
FLAT
MIN
5-BAND GRAPHIC EQUALIZER

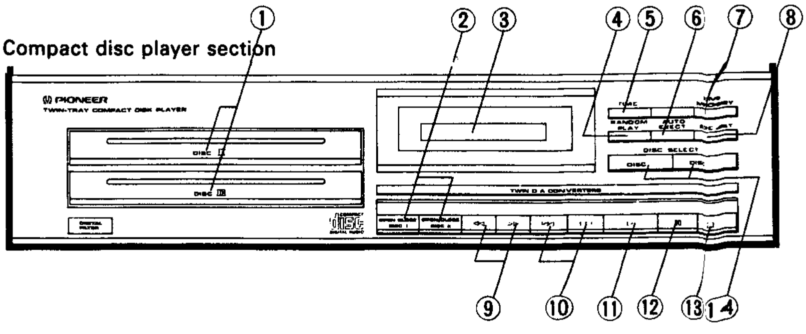
XD-Z62T (FRONT)



Cassette deck section


①
②
③
④
⑤
⑥
PIONEER
STEREO DOUBLE CASSETTE TAPE DECK
ASES
AUTO SYNCHRO EDITING SYSTEM
DECK I
PLAYBACK
DOUBLE REVERSE
RECORDING
DIRECTION
DECK II
REC/PLAY
REVERSE MODE
DOLBY NR
DOLBY SYSTEM
RELAY
SYNCHRO SYSTEM
EJECT
PLAY
STOP
FAST
NORMAL
HIGH
SYNCHRO COPY
MUTE
REC
PAUSE
⑦
⑧
⑨
⑩
⑪
⑫
⑬
⑭

Compact disc player section


①
②
③
④
⑤
⑥
⑦
⑧
PIONEER
TWIN-TRAY COMPACT DISC PLAYER
DISC I
DISC II
RANDOM PLAY
AUTO SELECT
DISC SELECT
TWIN D/A CONVERTERS
DIGITAL FILTER
COMPACT DISC DIGITAL AUDIO
OPEN/CLOSE DISC I
OPEN/CLOSE DISC II
⑨
⑩
⑪
⑫
⑬
⑭

REAR PANEL FACILITIES

Twin-CD cassette deck amplifier: XD-Z62T

① TUNER jack
Connect the F-Z92L FM/AM tuner.

② Ground terminal (GND)
Connect this to the ground terminal on the turntable (except for PL-Z92 and PL-Z82).

③ TURNTABLE DC 12 V OUTPUT jack
This jack supplies power to the PL-Z82 or PL-Z92.

④ PHONO input jacks
Connect the output cord on the turntable to these jacks.

⑤ VIDEO input jacks
Connect to audio output jacks of video disc player or VCR, etc.

⑥ SPEAKERS terminals
L: Connect the left speaker system as seen from the listening position.
R: Connect the right speaker system as seen from the listening position.

NOTE:
Connect a speaker system having a nominal impedance ranging from 6 ohms to 16 ohms.

⑦ CONTROL IN jack
Connect to CD PLAYER CONTROL OUT jack of tuner (F-Z92 or F-Z92L).

⑧ Power cord
Connect this to the AC wall socket.

FRONT PANEL FACILITIES

Twin-CD cassette deck amplifier: XD-Z62T

- Tapes can be played back on deck I; tapes can be played back and recorded on deck II.
- Sound can be recorded with the quality which has been adjusted by the graphic equalizer.

■ Amplifier section

① POWER STANDBY/ON switch
When this switch is set to on position, power is supplied to the twin-CD cassette deck amplifier's main circuit. The POWER unit's switch is geared to selecting the transformer's secondary so that even in STANDBY position, the unit's circuitry will work as long as the power cord is connected to a power outlet. Disconnect the power cord from the power outlet when you do not plan to use the unit for a long period of time.
The unit is in STANDBY when the display section of the tuner indicated only the time.

② Headphone jack (PHONES)

NOTE:
No sound is heard from the speakers if headphones are plugged into this jack.

③ FUNCTION switches/indicators
[CD]
Press to listen to compact discs.
[PHONO]
Press when playing records on a turntable connected to the PHONO jacks.
[TUNER]
Press when listening to a radio broadcast.
[TAPE]
Press when listening to a cassette tape.
[VIDEO]
Press when listening to a component connected to the VIDEO jacks.

④ VOLUME control

■ Graphic equalizer section

① Graphic equalizer controls
Fine adjustments in sound quality are possible using the 5 controls on the graphic equalizer.

■ Cassette deck section

① Deck I Cassette door

② Deck I Operation switches
▶ PLAY (FWD).... For playing back a tape in the forward mode.
◀ PLAY (REV)...... For playing back a tape in the reverse mode.
■ STOP.................. For stopping the tape.
▶▶ FAST.............. Fast forward in forward mode, rewind in reverse mode.
◀◀ FAST.............. Rewind in forward mode, fast forward in reverse mode.

③ Operation indicators
ASES: Lights when the ASES (Auto Synchro Editing System) is operating.
RECORDING: Lights when recording Flashes when copying a tape.
Slow flashing – Normal copy
Rapid flashing – High speed copy
Direction(◁ , ▷): Show direction of tape travel

④ ASES switch
Used for automatic transfer of music from CD to cassette tape.

⑤ DOLBY* NR switch

Set this switch to the ON position to activate the DOLBY NR system.

- Tapes recorded using Dolby noise reduction should always be played back with the noise reduction system on. Sound quality will be adversely affected if they are played back with the system off, or if tapes recorded using a different noise reduction system are played back with the Dolby NR system on.
- It is recommended that tapes recorded using Dolby B NR be so marked on the label. This will help to prevent incorrect setting of the noise reduction switch during playback.

---

* Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol ᗡᗞ are trademarks of Dolby Laboratories Licensing Corporation.

⑥ REVERSE MODE switch

Switch position	During playback	During recording
REC ⇄ RELAY PLAY	Plays both tape sides. When one deck finishes playback, the other side begins playback of both tape sides. (6 times maximum). If there is a tape in only one deck, then that deck continuously plays both sides of the tape. (6 times maximum).	Records on one side (Deck II only).
REC ⊃ PLAY ⊂⊃	Plays both sides continuously. (6 times maximum).	Records on both sides (Deck II only).

⑦ Deck I EJECT switch

⑧ Deck II EJECT switch

⑨ SYNCHRO COPY switches

Use for tape copying.

NORMAL:	Copying from the Deck I tape to the Deck II tape at normal recording/playback speed.
HIGH:	Copying at about twice normal tape speed. (Copies can be made in about half the NORMAL time.)

⑩ MUTE (○) switch (Deck II)

Use to create an unrecorded blank space between songs. The unrecorded space will be created for as long as this switch is kept pressed.

⑪ REC (●) switch (Deck II)

Set to recording standby mode. Then, recording starts by pressing PLAY switch (◀ or ▶).

⑫ PAUSE (▮▮) switch (Deck II)

Temporarily stops tape travel. Cancels pause mode when pressed again.

⑬ Deck II Cassette door

⑭ Deck II Operation switches

▶ PLAY (FWD)	For playing back a tape in the forward mode.
◀ PLAY (REV)	For playing back a tape in the reverse mode.
■ STOP	For stopping the tape run.
▶▶ FAST	Fast forward in forward mode, rewind in reverse mode.
◀◀ FAST	Rewind in forward mode, fast forward in reverse mode.

■ Compact disc player section

① DISC trays (I, II)

This is where the disc is set. When power is switched ON and the OPEN/CLOSE switch is pressed, the tray is ejected forward. To insert the tray, press the OPEN/CLOSE switch, or lightly push the tray in with your finger. With the disc tray open, press the play switch to close the disc tray and start playback.

② OPEN/CLOSE switches (I, II)

Press when you wish to eject or load a disc. Each time the switch is pressed, the tray is alternately pushed out or pulled in.
DISC I: Opens and closed DISC tray I.
DISC II: Opens and closed DISC tray II.

③ Indicators

AUTO EJECT	: Lights during auto eject playback.
PGM	: Lights after programming (after program has been memorized).
RND	: Lights during random playback.
DISC	: Displays the disc number (I or II) of the disc to be played.
▷	: Lights during playback.
▯▯	: Lights during temporarily interrupted playback.
TRACK	: Displays the current track number and index number (during normal playback and programmed playback) or the track being programmed during programming operation.
1 ▶ REP	: Lights during repeat playback of one track.
REP	: Lights during repeat play.
TIME/REM/TOTAL	: Changes each time the TIME switch is pressed.
• TIME	: Displays the track number of the track being played (TRACK) and the elapsed time (minutes and seconds).
• REM	: Displays the remaining time on the track being played. When the TIME switch is pressed again, the remaining time on the disc being played will be displayed.
• TOTAL	: Displays the total number of tracks on the disc (TRACK) and the overall playback time (minutes and seconds) of disc I. When the TIME switch is pressed again, the total number of tracks on the disc (TRACK) and the overall playback time of disc II will be displayed. During playback, the display goes on for about 5 seconds before changing to the TIME display.
M (minute)	: Displays the minutes of the elapsed time, total playback time, and remaining time.
S (second)	: Displays the seconds of the elapsed time, total playback time, and remaining time.

④ RANDOM PLAY switch

Press to begin random playback.

⑤ TIME switch

This switch selects the display mode of the indicator panel. Each time the switch is pressed, the indication changes from TIME, REM, to TOTAL in that order. (For details concerning the display contents, refer to the explanation about the indicators.)

⑥ AUTO EJECT switch

Press to perform auto eject playback.
When a disc is finished playing, the disc's disc tray will automatically eject. The other disc tray will close and playback will start. By replacing discs, continuous playback can be maintained.

⑦ PGM MEMORY switch (PROGRAM MEMORY)

Use to program a sequence of tracks.

- Press this switch after selecting a desired disc and track with DISC SELECT and track search switches. Tunes will be added to the program in the order in which they are specified.

⑧ REPEAT switch

Press this switch for repeat playback. Pressing the switch once, twice, or three times will change the repeat mode from single track repeat, all tracks repeat, and repeat playback cancellation.

Single track repeat:

The currently-playing track will repeat. The switch can be used during normal playback, program playback, random playback.

All tracks repeat:

All tracks on the disc will be repeated.

- If pressed during normal playback mode, all tracks on the discs will be repeatedly played back.
- If pressed during programmed playback, the programmed tracks will be repeatedly played back in the programmed order.
- In the case of random play mode, after all the tracks have been played, random play will start again.

⑨ Manual search switches

When the player is in playback or pause modes, these switches are pressed to perform fast forward or reverse operations to allow manual searching. These operations are only carried out during the time either switch is pressed.

[▶▶]: For fast forward operation. If the end of the disc is reached during fast forward operation, "End" will be displayed and the player will enter the pause mode. [During programmed playback, the player will enter the pause mode right before it reaches the next track (program step).]

[◀◀]: For fast reverse operation. If the beginning of the disc is reached during fast reverse operation, the player will enter the playback mode. [During programmed playback, the player will enter the playback mode right before it reaches the previous track (program step).]

⑩ Track search switches

During normal playback, programmed playback or pause modes, these switches are pressed to search for the desired track. Pressing either switch causes the player to advance to the next track or to return to the previous track. Even in stop mode, these switches can be used to select the desired track. Press the play switch to playback the desired track.

[▶▶|]: When pressed once, playback advances to the beginning of the next track on the disc; when pressed continuously, playback advances to the beginning of succeeding tracks on the disc. (During programmed playback, it advances to the beginning of the next programmed track.)

[|◀◀]: When pressed once, playback returns to the beginning of the currently playing track; when pressed continuously, playback shifts to the beginning of previous tracks on the disc. (During programmed playback it returns to the beginning of the previously programmed track.)

⑪ Play switch (▶)

Press to begin playback, and to cancel the pause mode.

⑫ Pause switch (❚❚)

Press to temporarily interrupt playback. When pressed again, the pause mode is cancelled and playback resumes.

⑬ Stop/clear switch (■)

Press to stop playback. When pressed, the player goes into stop mode and all operations stop.
Press to clear a program. When pressed during stop mode, the program stored in memory is cleared.

⑭ DISC SELECT switches

DISC I: Use to select DISC I for playback or programming.
DISC II: Use to select DISC II for playback or programming.

- During playback, when the disc select switch for the disc not being played is pressed, the current playback will stop and playback of that disc will begin.

Remote control unit

① **PHONO key**
Sets function to PHONO.

② **POWER key**

③ **TUNER STATION keys**
- Before operating, memorize the stations to STATION CALL switches.

+ .... Stations change in order in the upward direction.
- .... Stations change in order in the downward direction.

④ **DECK I operation keys**
▶ .... Forward play
◀ .... Reverse play
■ .... Stop

⑤ **Timer operation keys**

SLEEP: Sets the sleep timer. Each time you press this key, the setting changes as shown here. The current setting is shown on the tuner display.

→ 90 → 60 → 30
(approx. 90 minutes) (approx. 60 minutes) (approx. 30 minutes)
00 ←
(OFF)

If you press the SLEEP key during SLEEP operation, the display will show the time remaining till power turns off.

SNOOZE: Turns off power if pressed after timer playback begins. Timer playback begins again about five minutes later.

⑥ **VOLUME UP (+)/DOWN (−) keys**

⑦ **DECK II operation keys**
▶ .... Forward play
◀ .... Reverse play
▶▶ .... Fast
◀◀ .... Fast
■ .... Stop
❚❚ .... Pause
● .... REC (Recording standby). Next press the play button to begin recording.

⑧ **CD operation keys**
▶ .... Play
DISC .... DISC selection
■ .... Stop
❚❚ .... Pause
▶▶| .... Track search (forward)
|◀◀ .... Track search (reverse)

The amplifier section function automatically switches to the music source being operated when you press the CD playback (▶), deck playback (◀, ▶), or tuner station selection.
To operate with the remote control unit, use the keys with the same function indicating symbols (for example ▷) as those shown on the components.

NOTE:
It is not possible to operate the CD player section with the remote control unless the remote control cord is connected.

Range of remote control
When the remote control unit is pointed at the remote control sensor window on the tuner and any of its keys is pressed, the tuner and other components can be operated by remote control.
Distance: Within a range of about 7 meters from the remote control sensor window on the tuner.
Angle: Within approx. 30 degrees from the center of the remote control sensor window on the tuner.
Remote control will not be possible if there is an obstacle between the remote control unit itself and the remote sensor window on the tuner.

8. FOR HE TYPE

8.1 CONTRAST OF MISCELLANEOUS PARTS

NOTES:
- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

The XD-Z62T/HE type is the same as the XD-Z62T/HB type with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		XD-Z62T/HB type	XD-Z62T/HE type	
	POWER SUPPLY assembly	AWZ2247	AWZ2245	
	CONNECT assembly	Non supply	Non supply	
⚠	FU2003 Fuse (T800mA/250V)	AEK-507	AEK-031	DECK AMPLIFIER BLOCK
⚠	FU2001, FU2004, FU2005 Fuse (T1.25A/250V)	AEK-509	AEK-018	DECK AMPLIFIER BLOCK
⚠	AC Power cord	ADG-063	ADG1021	DECK AMPLIFIER BLOCK
	Caution card	ARM1003	......	PACKING
	Operating instruction (English)	ARM1158	......	PACKING
	Operating instruction (German)	......	ARC1139	PACKING
	Operating instruction (English, German, French, Italian, Dutch, Swedish, Spanish, Portguese)	......	ARE1120	PACKING
	CD BLOCK	Non supply(240V)	Non supply(220V)	*1

* 1: The only difference between the HB type CD block and the HE type CD block is connection of the power supply (220V and 240V).

8.2 POWER SUPPLY assembly (AWZ2245; HE type) and CONNECT assembly (HE type).

The difference in parts between the POWER SUPPLY assemblies of the HE type (AWZ2245) and the HB type (AWZ2247) is the jumper wire (220V and 240V).
The difference in parts between the CONNECT assemblies of the HE type and the HB type is the jumper wire (220V and 240V).

A4

8. FOR HE TYPE

8.1 CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

The XD-Z62T/HE type is the same as the XD-Z62T/HB type with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		XD-Z62T/HB type	XD-Z62T/HE type	
	POWER SUPPLY assembly	AWZ2247	AWZ2245	
	CONNECT assembly	Non supply	Non supply	
⚠	FU2003 Fuse (T800mA/250V)	AEK-507	AEK-031	DECK AMPLIFIER BLOCK
⚠	FU2001, FU2004, FU2005 Fuse (T1.25A/250V)	AEK-509	AEK-018	DECK AMPLIFIER BLOCK
⚠	AC Power cord	ADG-063	ADG1021	DECK AMPLIFIER BLOCK
	Caution card	ARM1003	······	PACKING
	Operating instruction (English)	ARM1158	······	PACKING
	Operating instruction (German)	······	ARC1139	PACKING
	Operating instruction (English, German, French, Italian, Dutch, Swedish, Spanish, Portguese)	······	ARE1120	PACKING
	CD BLOCK	Non supply(240V)	Non supply(220V)	*1

* 1: The only difference between the HB type CD block and the HE type CD block is connection of the power supply (220V and 240V).

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The difference in parts between the POWER SUPPLY assemblies of the HE type (AWZ2245) and the HB type (AWZ2247) is the jumper wire (220V and 240V).
The difference in parts between the CONNECT assemblies of the HE type and the HB type is the jumper wire (220V and 240V).

A4

MEMO

9. CD BLOCK

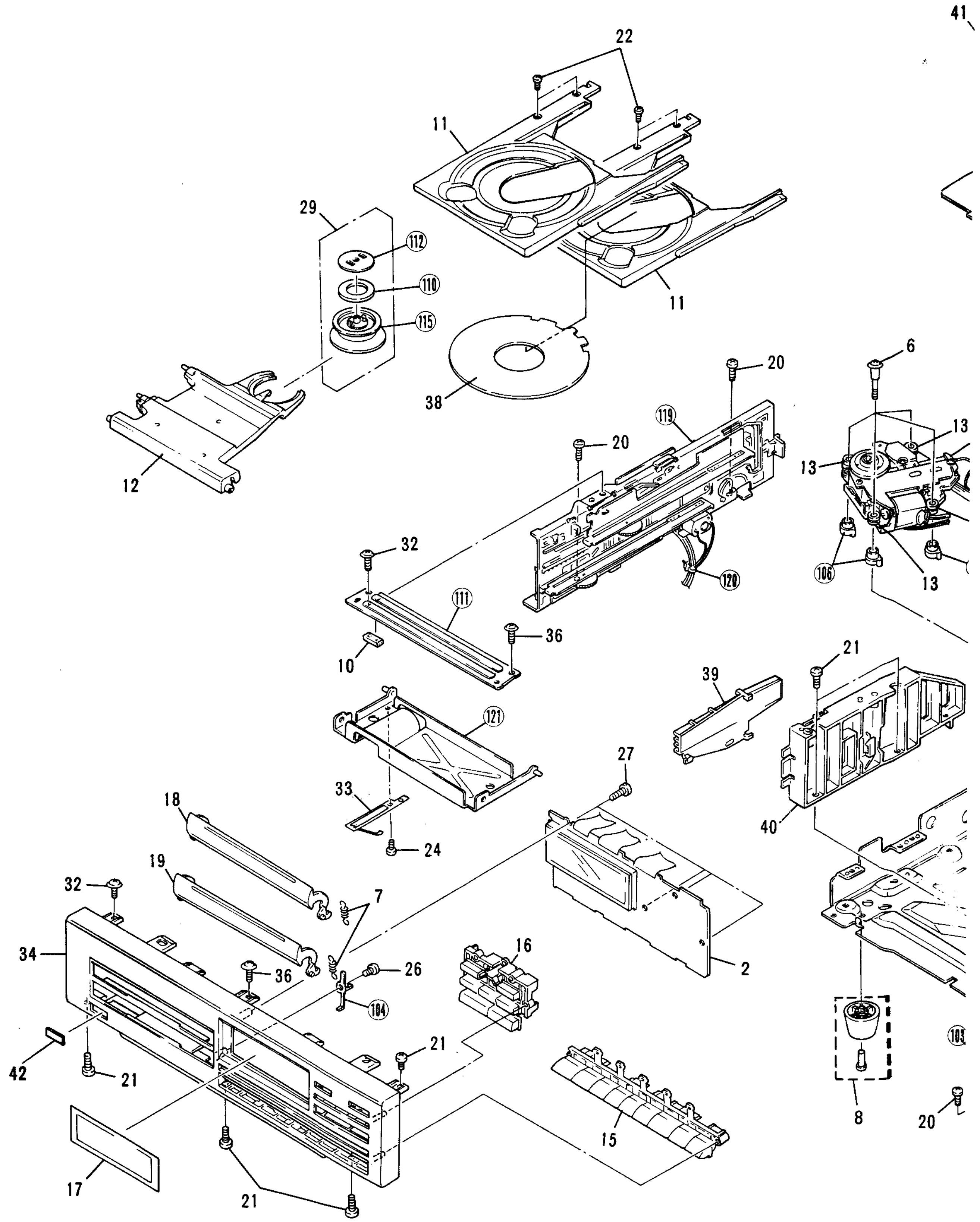
9.1 EXPLODED VIEWS AND PARTS LIST

NOTES :
- Parts without part number cannot be supplied.
- The ⚠ mark found on some component parts indicates the impotance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

9.1.1 Parts List of Exterior

Mark	No.	Part No.	Description
⚠⊙	1	PWZ1692	Main board assembly
⊙	2	PWZ1516	Control board assembly
	3		……
	4		……
⚠	5	PTT1092	Power transformer
	6	PBA1011	Screw
	7	PBH1072	Door spring
	8	PXA1201	Leg assembly
	9	RNH−184	Cord clamper
	10	PNM1011	Cushion rubber
	11	PNW1475	Tray
	12	PNW1479	Clamper holder
	13	PEB1014	Floating rubber
	14		……
	15	PAC1332	O/C Button
	16	PAC1333	Disc Button
	17	PAM1256	Indicator Window
	18	PNW1469	Door 1
	19	PNW1507	Door 2
	20	BBZ30P060FMC	Screw
	21	BBZ30P080FZK	Screw
	22	BMZ20P040FZK	Screw
	23	IBZ40P080FCC	Screw
	24	PDZ26P050FMC	Screw
	25		……
	26	PPZ30P050FMC	Screw
	27	PPZ30P100FMC	Screw
	28		……
	29	PYY1088	Clamper assembly
	30	PYY1091	Servo mechanism assembly
	31		……
	32	IBZ30P050FZK	Screw
	33	PBK1060	Plate spring
	34	PYY1103	Control panel unit
	35	BBZ30P080FCC	Screw
	36	IPZ30P080FMC	Screw
	37	PDZ30P050FMC	Screw
	38	PHC1043	Spacer (For packing)
	39	PNW1476	Guide
⊙	40	PNW1477	Guide base
	41	IBZ30P120FCC	Screw
	42	PAM1258	Name Plate
⚠	101		Transformer board assembly
	102		……
	103		Angle
	104		Door plate
	105		……
	106		Mechanism support
	107		Holder
	108		PCB spacer
	109		……
	110		Magnet
	111		Joint plate
	112		Yoke
	113		……
	114		……
	115		Clamper
	116		……
	117		Under base
	118		……
	119		Loading base assembly
	120		Binder
	121		Synchronous lever
	122		Hold Rubber

9.1.2 Exterior



9.1.2 Exterior

fore, when

unavailable.

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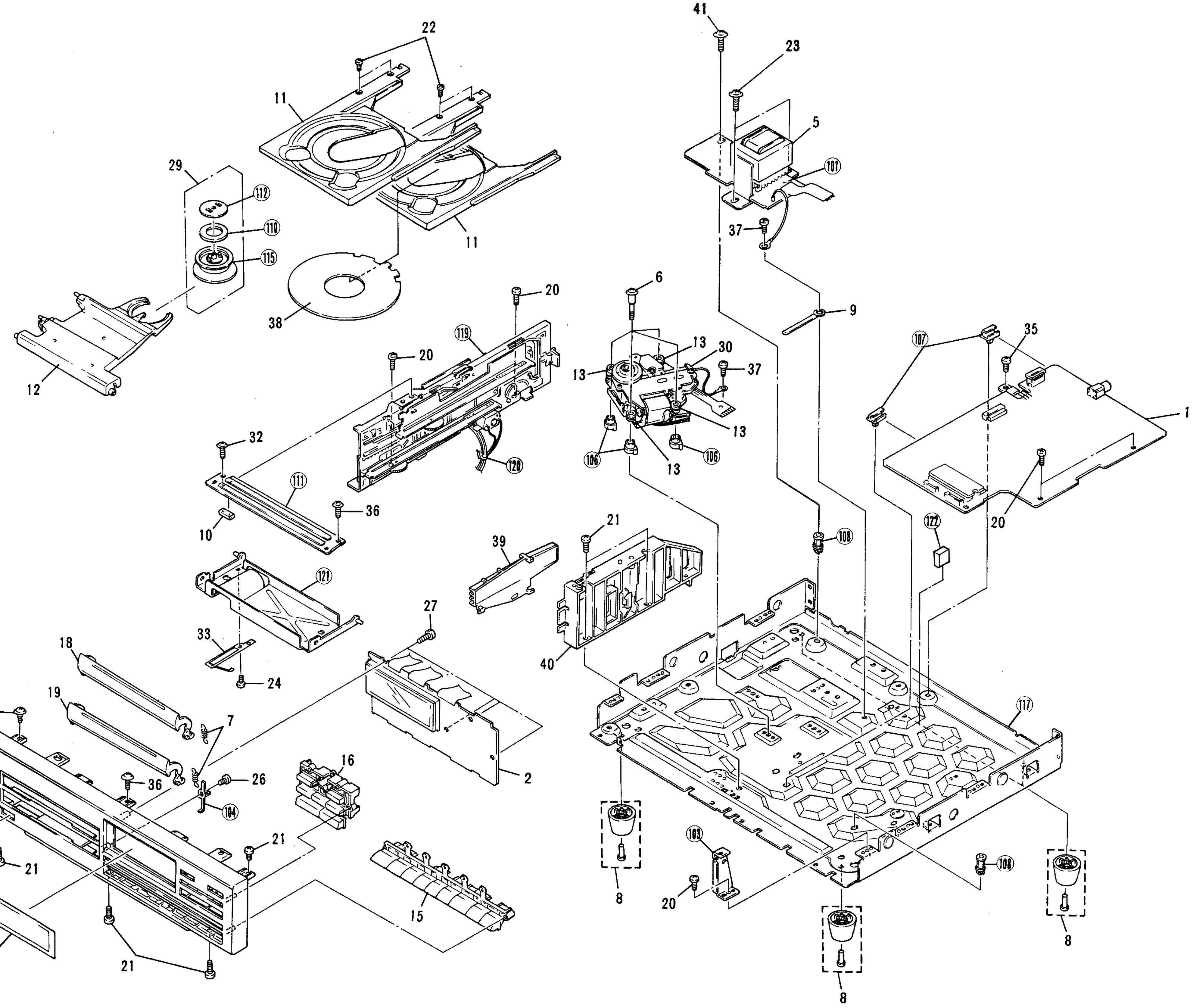
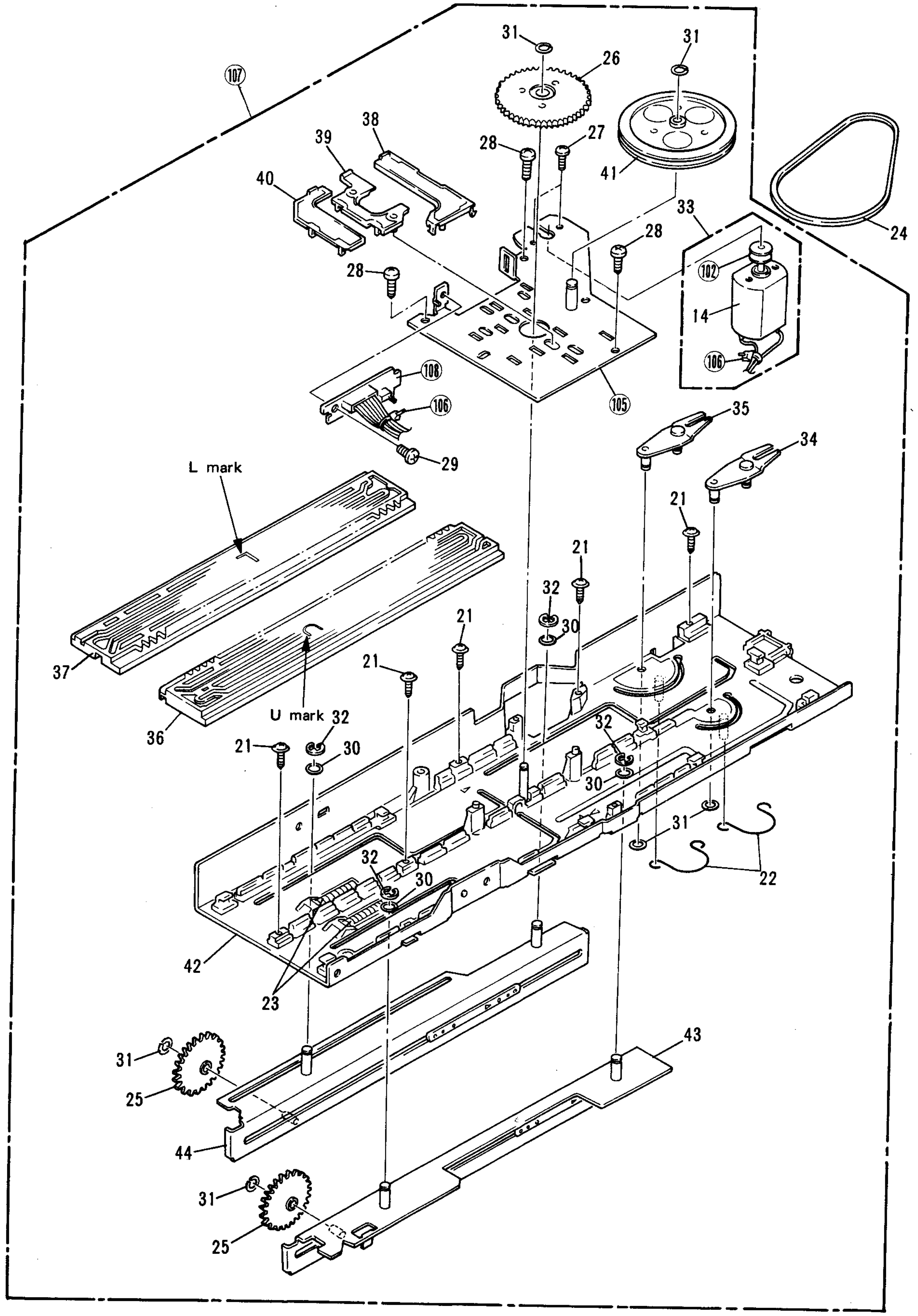
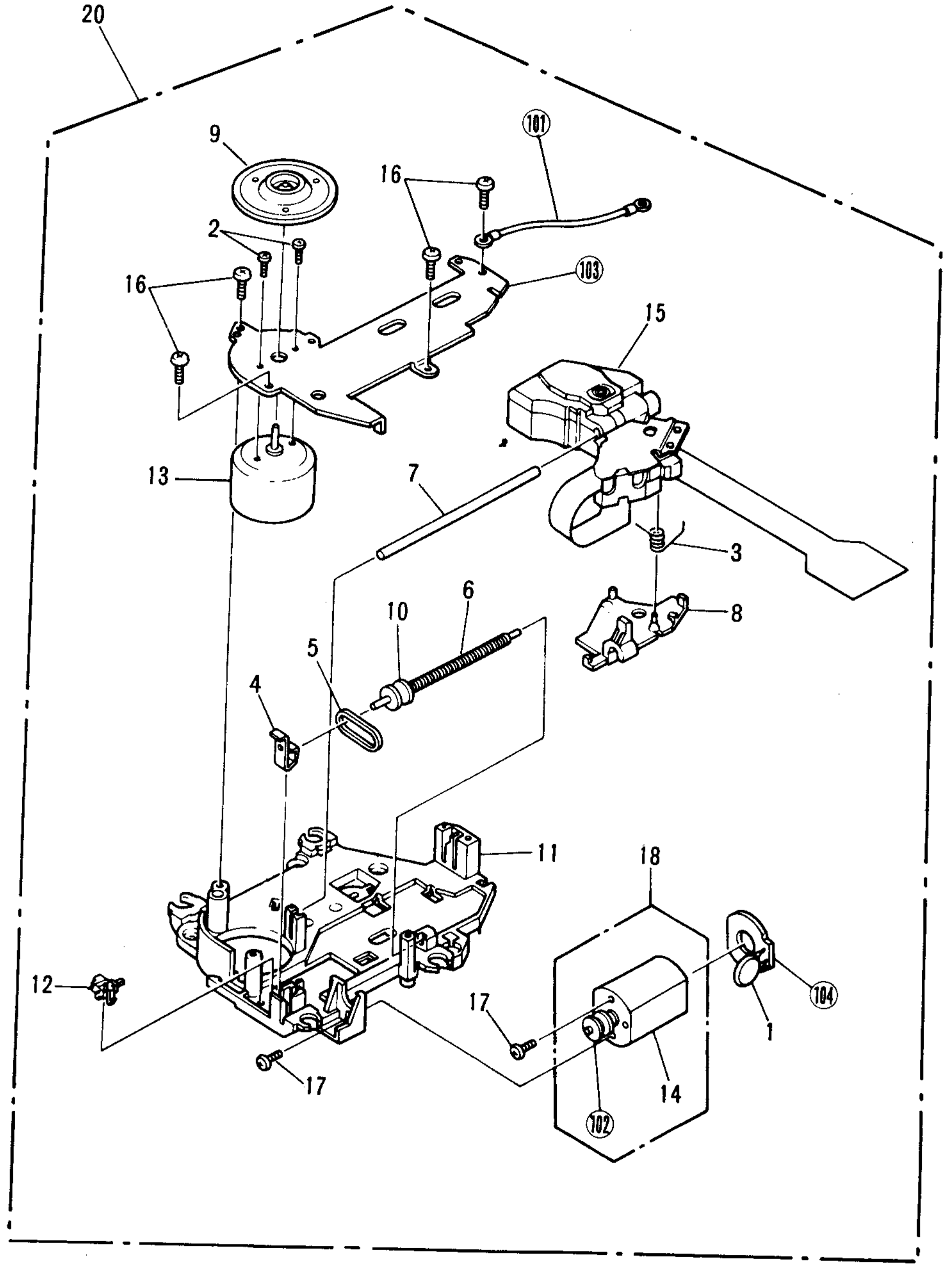

41
22
23
11
5
(101)
29
(112)
(110)
11
37
(115)
38
20
6
9
(119)
13
30
20
13
37
(107)
35
12
13
13
1
32
(120)
(106)
13
(106)
(111)
36
20
10
21
(122)
39
(108)
(121)
27
33
40
24
18
(117)
32
19
7
16
34
36
26
(104)
2
21
(103)
42
21
(108)
8
20
15
17
21
8
8

9.1.3 Mechanism Section

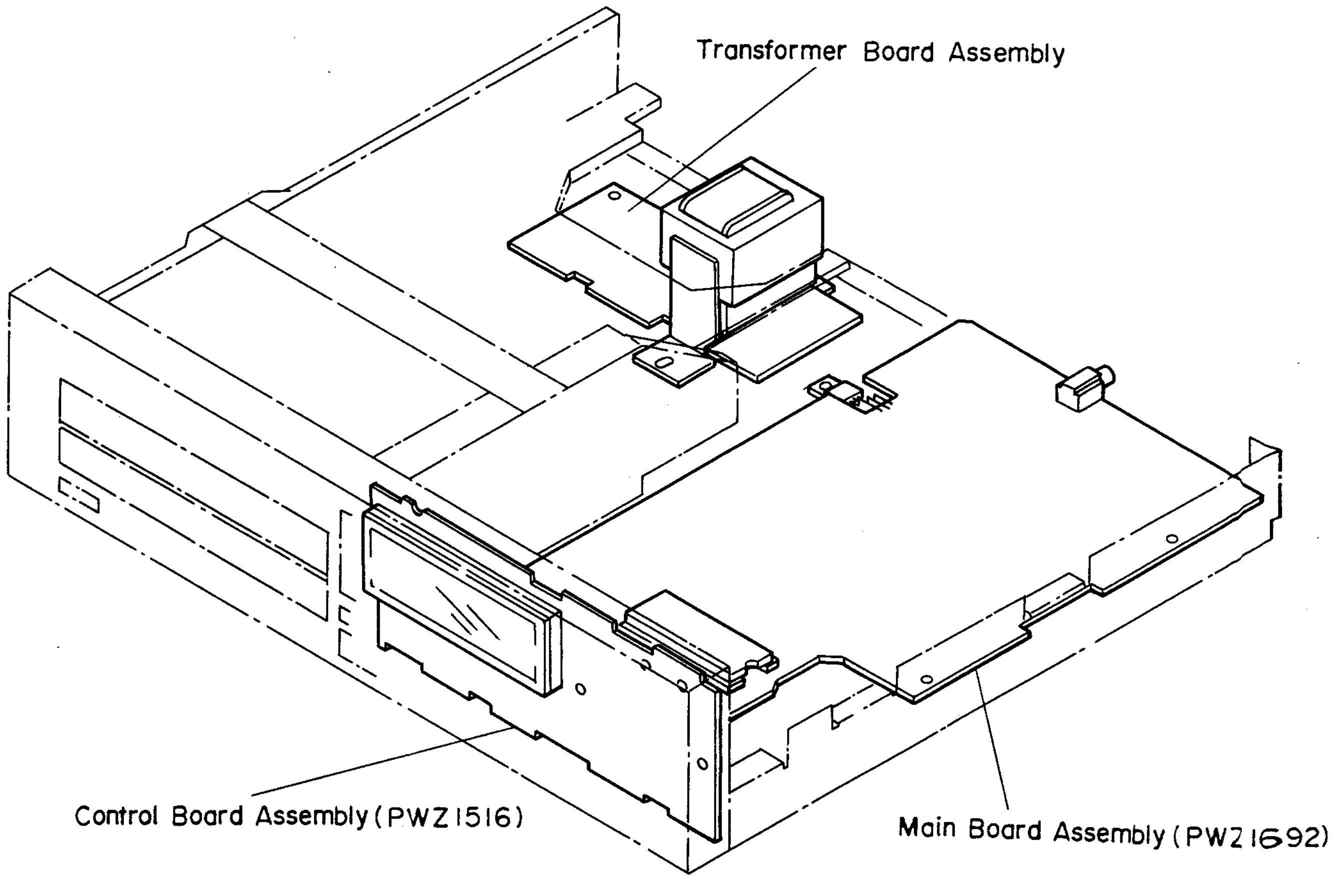

107
31
26
31
38
39
28
27
41
24
40
33
28
102
28
14
108
106
105
106
35
29
34
L mark
21
21
32
30
21
37
21
32
36
U mark
32
30
21
30
31
22
32
30
42
23
43
31
25
44
31
25


20
9
101
16
2
103
16
15
16
13
7
3
6
10
8
5
4
11
18
12
17
104
1
17
102
14

9.1.4 Parts List of Mechanism Section

Mark	No.	Part No.	Description
	1	CGDYX104M25	Semiconductive ceramic capacitor
	2	PBA1037	Screw M2×2.5
	3	PBH1008	Drive spring
	4	PBK1057	Plate spring
	5	PEB1072	Belt
	6	PLA1003	Drive screw
	7	PLA1004	Guide bar
	8	PNW1063	Carriage plate
	9	PNW1064	Disc table
	10	PNW1066	Pulley
	11	PNW1520	Mechanism chassis
	12	PSH1003	Slide switch (S101, INSIDE)
	13	PYY1109	Spindle motor assembly (with oil)
	14	PXM1002	Motor (CARRIAGE, LOADING)
	15	PWY1009	Pick−up assembly
	16	BPZ20P080FZK	Screw
	17	PMZ20P030FMC	Screw
	18	PYY1025	Motor assembly (CARRIAGE)
	19		......
	20	PYY1091	Servo mechanism assembly
	21	PBA1035	Screw
	22	PBH1074	Spring
	23	PBH1076	Spring
	24	PEB1106	Belt
	25	PNW1478	Sync gear
	26	PNW1486	Gear
	27	PMZ20P030FMC	Screw
	28	PPZ26P080FMC	Screw
	29	PSZ26P050FMC	Screw
	30	WA32L060C035	Washer
	31	WT26D047D025	Washer
	32	YE25FUC	E ring
	33	PYY1089	Motor assembly (LOADING)
	34	PNB1180	Auxiliary arm (U)
	35	PNB1181	Auxiliary arm (L)
	36	PNW1481	Rack (U)
	37	PNW1482	Rack (L)
	38	PNW1483	Switch lever (U)
	39	PNW1484	Switch lever (S)
	40	PNW1485	Switch lever (L)
	41	PNW1487	Gear pulley
	42	PNW1488	Loading base
⊙	43	PXT1025	Slide angle (U) unit
⊙	44	PXT1026	Slide angle (L) unit
	101		Earth lead unit
	102		Motor pulley
	103		Base plate
	104		Carriage M board
	105		Motor base
	106		Binder
	107		Loading base assembly
	108		SW board assembly

9.2 P.C.BOARDS LOCATION


Transformer Board Assembly
Control Board Assembly (PWZ1516)
Main Board Assembly (PWZ1692)

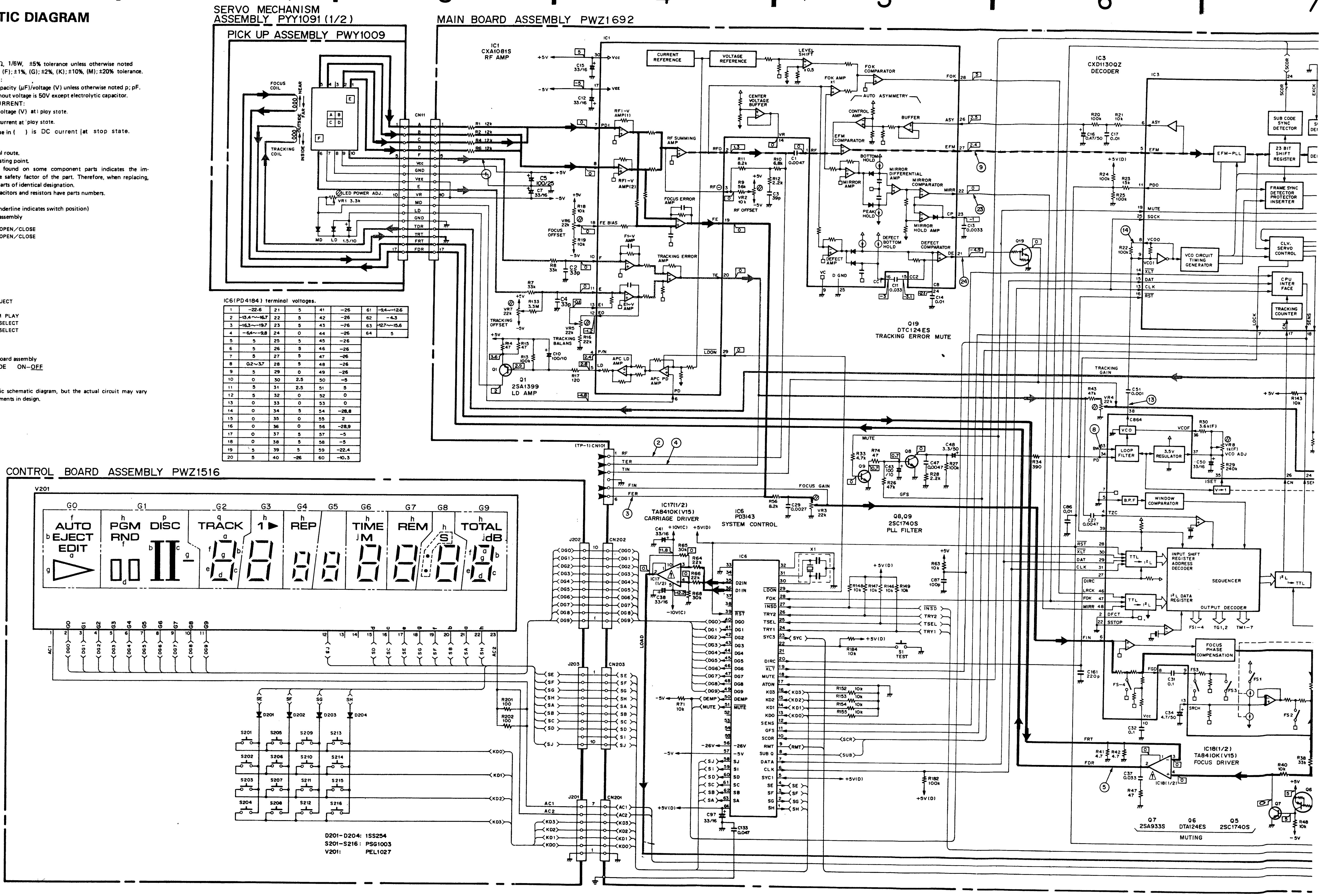
9.3 SCHEMATIC DIAGRAM

1. RESISTORS:
   Indicated in Ω, 1/6W, ±5% tolerance unless otherwise noted
   k; kΩ, M; MΩ, (F); ±1%, (G); ±2%, (K); ±10%, (M); ±20% tolerance.
2. CAPACITORS:
   Indicated in capacity (μF)/voltage (V) unless otherwise noted p; pF.
   Indication without voltage is 50V except electrolytic capacitor.
3. VOLTAGE CURRENT:
   ⏢ ; DC voltage (V) at play state.
   ⇦ mA : DC current at play state.
   Value in ( ) is DC current at stop state.
4. OTHERS:
   ➡ ; Signal route.
   ⊘ ; Adjusting point.
   The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
   ※ marked capacitors and resistors have parts numbers.
5. SWITCHES (Underline indicates switch position)
   Control board assembly

S201 : DISC I OPEN／CLOSE
S202 : DISC II OPEN／CLOSE
S203 : ◀◀
S204 : ▶▶
S205 : ◀◀|
S206 : ▶▶|
S207 : ▶
S208 : ▮▮
S209 : TIME
S210 : REPEAT
S211 : AUTO EJECT
S212 : PGM
S213 : RANDOM PLAY
S214 : DISC I SELECT
S215 : DISC II SELECT
S216 : ■

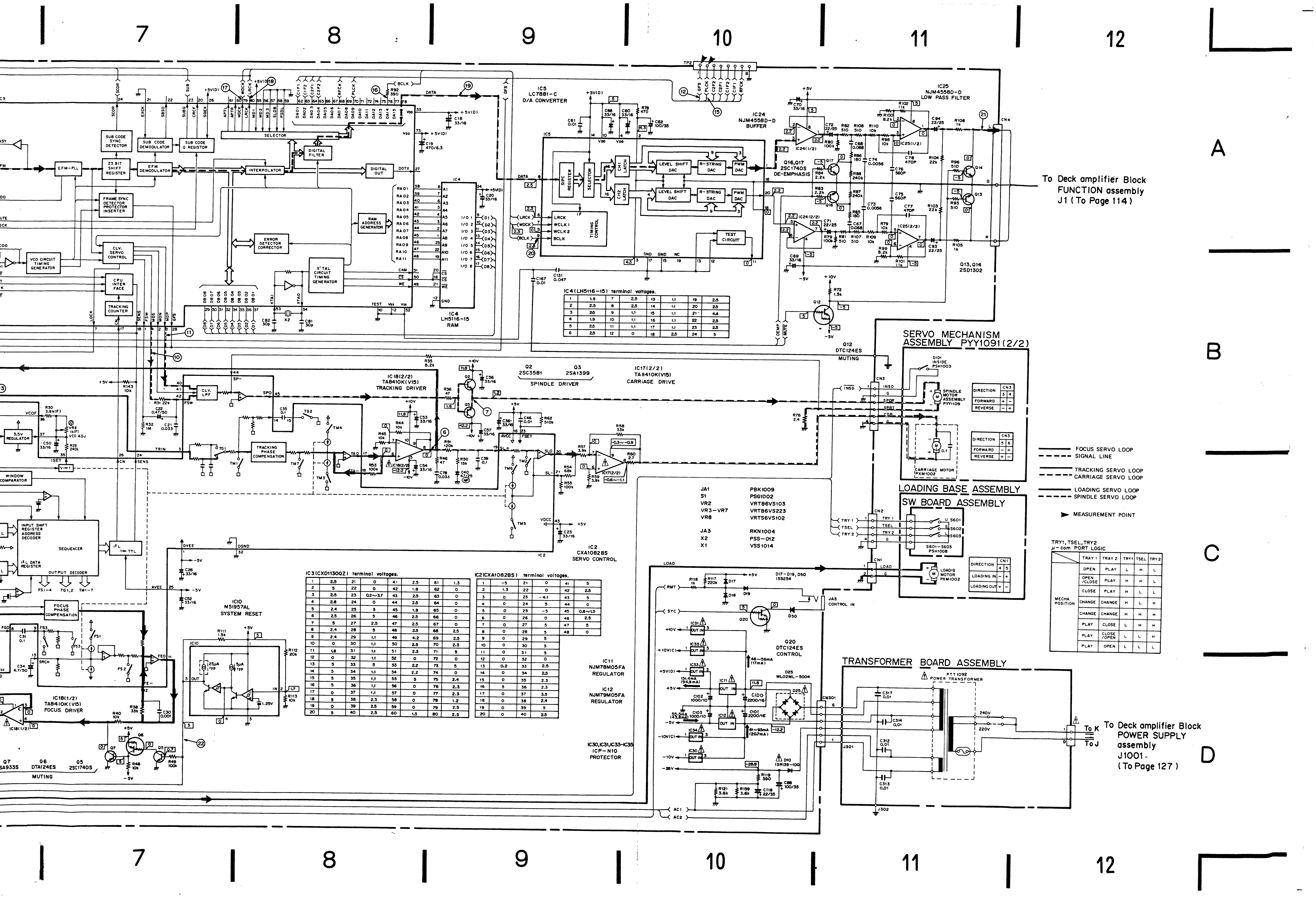
Outside of PC board assembly
S101: INSIDE ON–OFF

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.


1
2
3
4
5
6
7
A
B
C
D
SERVO MECHANISM ASSEMBLY PYY1091 (1/2)
PICK UP ASSEMBLY PWY1009
MAIN BOARD ASSEMBLY PWZ1692
CONTROL BOARD ASSEMBLY PWZ1516
FOCUS COIL
TRACKING COIL
LED POWER ADJ.
VR1 3.3k
MD
LD
CN11
IC1 CXA1081S RF AMP
CURRENT REFERENCE
VOLTAGE REFERENCE
LEVEL SHIFT
FOK COMPARATOR
FOK AMP
CENTER VOLTAGE BUFFER
RF1-V AMP(1)
RF1-V AMP(2)
RF SUMMING AMP
FOCUS ERROR AMP
F1-V AMP
TRACKING ERROR AMP
E1-V AMP
APC LD AMP
APC PD AMP
AUTO ASYMMETRY
CONTROL AMP
BUFFER
EFM COMPARATOR
BOTTOM HOLD
PEAK HOLD
MIRROR AMP
MIRROR DIFFERENTIAL AMP
MIRROR COMPARATOR
MIRROR HOLD AMP
DEFECT AMP
DEFECT BOTTOM HOLD
DEFECT COMPARATOR
FOCUS OFFSET
TRACKING OFFSET
TRACKING BALANS
RF OFFSET
Q1 2SA1399 LD AMP
Q19 DTC124ES TRACKING ERROR MUTE
IC3 CXD1130QZ DECODER
SUB CODE SYNC DETECTOR
EFM-PLL
23 BIT SHIFT REGISTER
FRAME SYNC DETECTOR PROTECTOR INSERTER
VCO CIRCUIT TIMING GENERATOR
CLV. SERVO CONTROL
CPU INTER FACE
TRACKING COUNTER
TRACKING GAIN
LOOP FILTER
3.5V REGULATOR
VCO ADJ
WINDOW COMPARATOR
B.P.F
INPUT SHIFT REGISTER ADDRESS DECODER
SEQUENCER
I²L DATA REGISTER
OUTPUT DECODER
FOCUS PHASE COMPENSATION
IC18(1/2) TA8410K(V15) FOCUS DRIVER
Q7 2SA933S
Q6 DTA124ES
Q5 2SC1740S
MUTING
Q8,Q9 2SC1740S PLL FILTER
MUTE
FOCUS GAIN
IC17(1/2) TA8410K(V15) CARRIAGE DRIVER
IC6 PD3143 SYSTEM CONTROL
X1
S1 TEST
V201
G0
G1
G2
G3
G4
G5
G6
G7
G8
G9
AUTO
EJECT
EDIT
PGM
RND
DISC
TRACK
REP
TIME
REM
TOTAL
dB
D201
D202
D203
D204
S201
S202
S203
S204
S205
S206
S207
S208
S209
S210
S211
S212
S213
S214
S215
S216
D201–D204: 1SS254
S201–S216: PSG1003
V201: PEL1027

IC6(PD4184) terminal voltages.

1	−22.6	21	5	41	−26	61	−9.4～−12.6
2	−13.4～−16.7	22	5	42	−26	62	−4.3
3	−16.3～−19.7	23	5	43	−26	63	−12.7～−15.6
4	−6.4～−9.8	24	0	44	−26	64	5
5	5	25	5	45	−26		
6	5	26	5	46	−26		
7	5	27	5	47	−26		
8	0.2～3.7	28	5	48	−26		
9	5	29	0	49	−26		
10	0	30	2.5	50	−5		
11	5	31	2.5	51	5		
12	5	32	0	52	0		
13	0	33	0	53	0		
14	0	34	5	54	−28.8		
15	0	35	0	55	2		
16	0	36	0	56	−28.9		
17	0	37	5	57	−5		
18	0	38	5	58	−5		
19	5	39	5	59	−22.4		
20	5	40	−26	60	−10.3		


7
8
9
10
11
12
A
B
C
D
EFM-PLL
23 BIT SHIFT REGISTER
EFM DEMODULATOR
SUB CODE SYNC DETECTOR
SUB CODE DEMODULATOR
SUB CODE Q REGISTOR
FRAME SYNC DETECTOR PROTECTOR INSERTER
INTERPOLATOR
SELECTOR
DIGITAL FILTER
DIGITAL OUT
RAM ADDRESS GENERATOR
ERROR DETECTOR CORRECTOR
X'TAL CIRCUIT TIMING GENERATOR
CLV. SERVO CONTROL
VCO CIRCUIT TIMING GENERATOR
CPU INTER FACE
TRACKING COUNTER
IC4
LH5116-15
RAM
IC5
LC7881-C
D/A CONVERTER
SIPO REGISTER
SELECTOR
CH1 LATCH
CH2 LATCH
LEVEL SHIFT DAC
R-STRING DAC
PWM DAC
TIMING CONTROL
TEST CIRCUIT
IC24
NJM4558D-D
BUFFER
IC25
NJM4558D-D
LOW PASS FILTER
Q16,Q17
2SC1740S
DE-EMPHASIS
Q13,Q14
2SD1302
Q12
DTC124ES
MUTING
To Deck amplifier Block
FUNCTION assembly
J1 (To Page 114)
IC18(2/2)
TA8410K(V15)
TRACKING DRIVER
Q2
2SC3581
Q3
2SA1399
SPINDLE DRIVER
IC17(2/2)
TA8410K(V15)
CARRiAGE DRIVE
CLV. LPF
TRACKING PHASE COMPENSATION
3.5V REGULATOR
WINDOW COMPARATOR
INPUT SHIFT REGISTER ADDRESS DECODER
SEQUENCER
I²L DATA REGISTER
OUTPUT DECODER
FOCUS PHASE COMPENSATION
IC18(1/2)
TA8410K(V15)
FOCUS DRIVER
Q7
2SA933S
Q6
DTA124ES
Q5
2SC1740S
MUTING
IC2
CXA1082BS
SERVO CONTROL
IC10
M51957AL
SYSTEM RESET
IC11
NJM78M05FA
REGULATOR
IC12
NJM79M05FA
REGULATOR
IC30,IC31,IC33–IC35
ICP–N10
PROTECTOR
Q20
DTC124ES
CONTROL
D25
WL02ML-5004
D17–D19, D50
1SS254
JA3
CONTROL IN
SERVO MECHANISM ASSEMBLY PYY1091(2/2)
S101
INSIDE
PSH1003
SPINDLE MOTOR ASSEMBLY PYY1109
CARRIAGE MOTOR PXM1002
LOADING BASE ASSEMBLY
SW BOARD ASSEMBLY
S601–S603
PSH1008
LOADIG MOTOR PXM1002
TRANSFORMER BOARD ASSEMBLY
PTT1092
POWER TRANSFORMER
To Deck amplifier Block
POWER SUPPLY
assembly
J1001-
(To Page 127)
7
8
9
10
11
12

IC4(LH5116-15) terminal voltages.

1	1.9	7	2.5	13	1.1	19	2.5
2	2.5	8	2.5	14	1.1	20	2.5
3	2.5	9	1.1	15	1.1	21	4.4
4	1.9	10	1.1	16	1.1	22	2.5
5	2.5	11	1.1	17	1.1	23	2.5
6	2.5	12	0	18	2.5	24	5

IC3(CXD1130QZ) terminal voltages.

1	2.5	21	0	41	2.5	61	1.3
2	5	22	0	42	1.9	62	0
3	2.5	23	0.2~3.7	43	2.5	63	0
4	2.8	24	0	44	2.5	64	0
5	2.4	25	5	45	1.9	65	0
6	2.5	26	5	46	2.5	66	0
7	5	27	2.5	47	2.5	67	0
8	2.4	28	5	48	2.5	68	2.5
9	2.4	29	1.1	49	4.2	69	2.5
10	0	30	1.1	50	2.5	70	2.3
11	1.8	31	1.1	51	2.3	71	5
12	0	32	1.1	52	0	72	0
13	5	33	5	53	2.2	73	5
14	5	34	1.1	54	2.2	74	0
15	5	35	1.1	55	5	75	2.4
16	5	36	1.1	56	0	76	2.3
17	0	37	1.1	57	0	77	2.3
18	5	38	2.5	58	0	78	1.2
19	0	39	2.5	59	0	79	2.5
20	5	40	2.5	60	1.3	80	2.5

IC2(CXA1082BS) terminal voltages.

1	-5	21	0	41	5
2	1.3	22	0	42	2.5
3	0	23	-4.1	43	5
4	0	24	5	44	0
5	0	25	-5	45	0.8~1.5
6	0	26	0	46	2.5
7	0	27	5	47	5
8	0	28	5	48	0
9	0	29	5		
10	0	30	5		
11	0	31	5		
12	0	32	0		
13	0.2	33	2.5		
14	0	34	2.5		
15	0	35	2.3		
16	5	36	2.3		
17	0	37	3.5		
18	0	38	2.4		
19	0	39	5		
20	0	40	2.5		

JA1	PBK1009
S1	PSG1002
VR2	VRTB6VS103
VR3–VR7	VRTB6VS223
VR8	VRTS6VS102
JA3	RKN1004
X2	PSS–012
X1	VSS1014

FOCUS SERVO LOOP
SIGNAL LINE

TRACKING SERVO LOOP
CARRIAGE SERVO LOOP

LOADING SERVO LOOP
SPINDLE SERVO LOOP

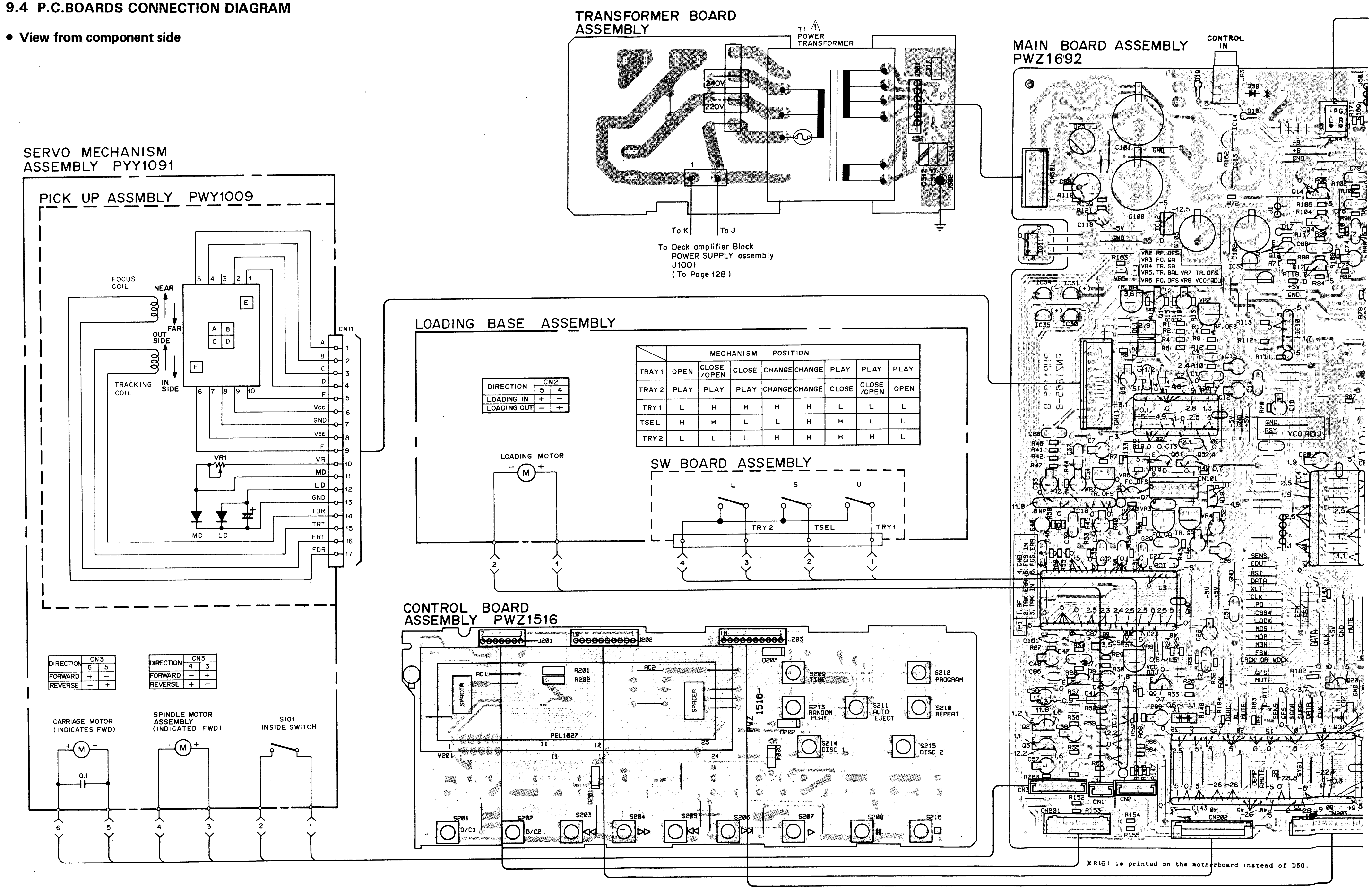
► MEASUREMENT POINT

TRY1, TSEL, TRY2
μ-com PORT LOGIC

	TRAY 1	TRAY 2	TRY1	TSEL	TRY2
MECHA POSITION	OPEN	PLAY	L	H	L
	OPEN /CLOSE	PLAY	H	H	L
	CLOSE	PLAY	H	L	L
	CHANGE	CHANGE	H	L	H
	CHANGE	CHANGE	H	H	H
	PLAY	CLOSE	L	H	H
	PLAY	CLOSE /OPEN	L	L	H
	PLAY	OPEN	L	L	L

9.4 P.C.BOARDS CONNECTION DIAGRAM

- **View from component side**



1
2
3
4
5
6
A
B
C
D
TRANSFORMER BOARD ASSEMBLY
T1 POWER TRANSFORMER
240V
220V
J301
J302
C312
C313
C314
C317
To K
To J
To Deck amplifier Block POWER SUPPLY assembly J1001 (To Page 128)
MAIN BOARD ASSEMBLY PWZ1692
CONTROL IN
J43
J501
CN301
CN4
CN11
CN101
CN1
CN2
CN3
CN201
CN202
CN203
IC11
IC13
IC14
IC17
IC18
IC31
IC33
IC34
IC35
IC30
IC10
C100
C101
VR2 RF. OFS
VR3 FO. GA
VR4 TR. GA
VR5. TR. BAL VR7 TR. OFS
VR6 FO. OFS VR8 VCO ADJ
VCO ADJ
SENS
COUT
RST
DATA
XLT
CLK
PD
C884
LOCK
MDS
MDP
MON
FSW
LRCK OR WDCK
GFS
MUTE
EFM
ASY
TP1
1. RF
2. TRK ERR
3. TRK IN
4. GND
5. FCS IN
6. FCS ERR
SERVO MECHANISM ASSEMBLY PYY1091
PICK UP ASSMBLY PWY1009
FOCUS COIL
NEAR
FAR
OUT SIDE
IN SIDE
TRACKING COIL
E
A
B
C
D
F
VR1
MD
LD
CN11
A
B
C
D
F
Vcc
GND
VEE
E
VR
MD
LD
GND
TDR
TRT
FRT
FDR
LOADING BASE ASSEMBLY
LOADING MOTOR
SW BOARD ASSEMBLY
L
S
U
TRY 2
TSEL
TRY 1
CARRIAGE MOTOR (INDICATES FWD)
0.1
SPINDLE MOTOR ASSEMBLY (INDICATED FWD)
S101 INSIDE SWITCH
CONTROL BOARD ASSEMBLY PWZ1516
J201
J202
J203
V201
PEL1027
AC1
AC2
R201
R202
SPACER
D201
D202
D203
S209 TIME
S212 PROGRAM
S213 RANDOM PLAY
S211 AUTO EJECT
S210 REPEAT
S214 DISC 1
S215 DISC 2
S201 O/C1
S202 O/C2
S203
S204
S205
S206
S207
S208
S216

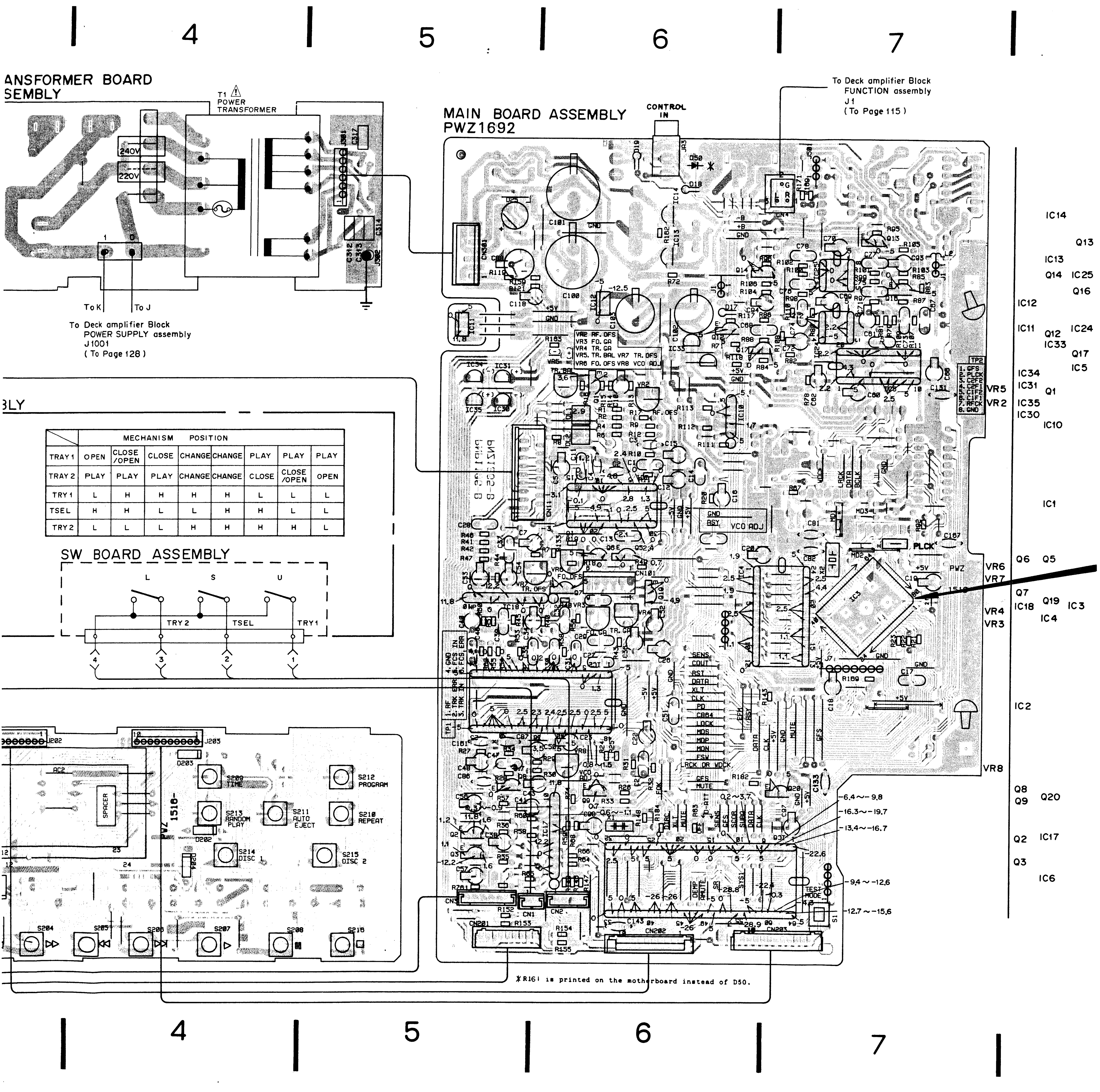
DIRECTION	CN2	
	5	4
LOADING IN	+	−
LOADING OUT	−	+

	MECHANISM	POSITION						
TRAY 1	OPEN	CLOSE /OPEN	CLOSE	CHANGE	CHANGE	PLAY	PLAY	PLAY
TRAY 2	PLAY	PLAY	PLAY	CHANGE	CHANGE	CLOSE	CLOSE /OPEN	OPEN
TRY 1	L	H	H	H	H	L	L	L
TSEL	H	H	L	L	H	H	L	L
TRY 2	L	L	L	H	H	H	H	L

DIRECTION	CN3	
	6	5
FORWARD	+	−
REVERSE	−	+

DIRECTION	CN3	
	4	3
FORWARD	−	+
REVERSE	+	−

*R161 is printed on the motherboard instead of D50.

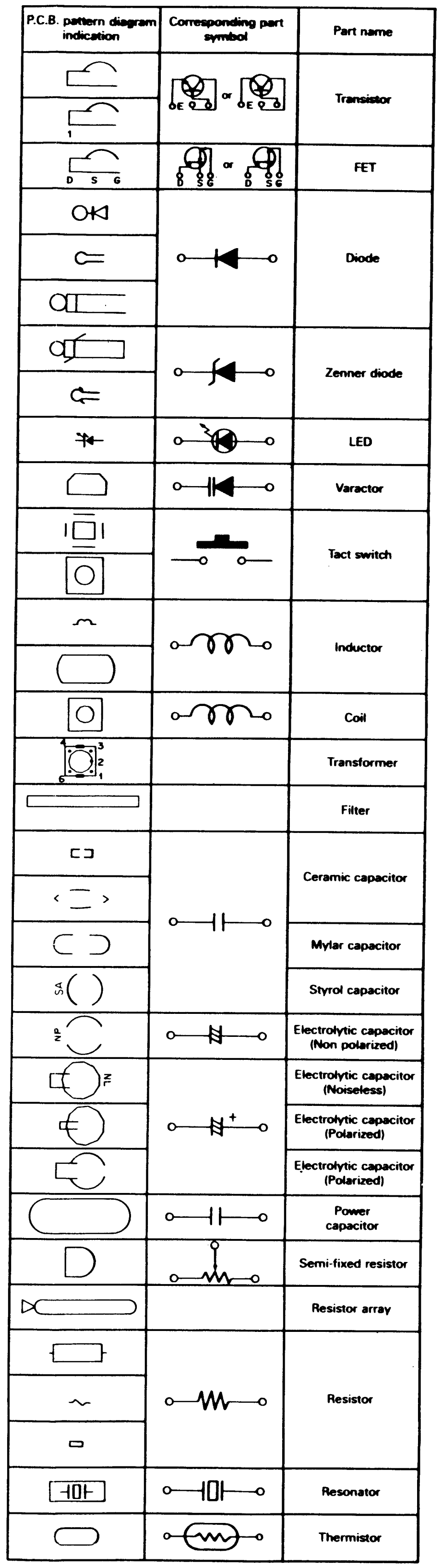

4
5
6
7
8
9
ANSFORMER BOARD
SEMBLY
T1 ⚠
POWER
TRANSFORMER
240V
220V
To K
To J
To Deck amplifier Block
POWER SUPPLY assembly
J1001
(To Page 128)
MAIN BOARD ASSEMBLY
PWZ1692
CONTROL
IN
To Deck amplifier Block
FUNCTION assembly
J1
(To Page 115)
3LY
SW BOARD ASSEMBLY
L
S
U
TRY 2
TSEL
TRY 1
S209 TIME
S213 RANDOM PLAY
S211 AUTO EJECT
S212 PROGRAM
S210 REPEAT
S214 DISC 1
S215 DISC 2
S204
S205
S206
S207
S208
S216
SPACER
PLCK
PWZ
TEST MODE
IC14
Q13
IC13
Q14
IC25
Q16
IC12
IC11
Q12
IC24
IC33
Q17
IC5
IC34
IC31
Q1
IC35
IC30
IC10
VR5
VR2
IC1
VR6
VR7
Q6
Q5
Q7
IC18
Q19
IC3
VR4
VR3
IC4
IC2
VR8
Q8
Q9
Q20
Q2
IC17
Q3
IC6
4
5
6
7
8
9

	MECHANISM POSITION							
TRAY 1	OPEN	CLOSE /OPEN	CLOSE	CHANGE	CHANGE	PLAY	PLAY	PLAY
TRAY 2	PLAY	PLAY	PLAY	CHANGE	CHANGE	CLOSE	CLOSE /OPEN	OPEN
TRY 1	L	H	H	H	H	L	L	L
TSEL	H	H	L	L	H	H	L	L
TRY 2	L	L	L	H	H	H	H	L

※R161 is printed on the motherboard instead of D50.

IC3 (CXD1130QZ)
terminal
voltages.

1	2.5
2	5
3	2.5
4	2.8
5	2.4
6	2.5
7	5
8	2.4
9	
10	0
11	1.8
12	0
13	- 5
14	
15	
16	
17	0
18	5
19	0
20	5
21	0
22	
23	0.2−3.7
24	0
25	5
26	
27	2.5
28	5
29	1.1
30	
31	
32	
33	5
34	1.1
35	
36	
37	
38	2.5
39	
40	
41	
42	1.9
43	2.5
44	
45	1.9
46	2.5
47	
48	
49	4.2
50	2.5
51	2.3
52	0
53	2.2
54	
55	5
56	0
57	
58	
59	
60	1.3
61	
62	0
63	
64	
65	
66	
67	
68	2.5
69	
70	2.3
71	5
72	0
73	5
74	0
75	2.4
76	2.3
77	
78	1.2
79	2.5
80	

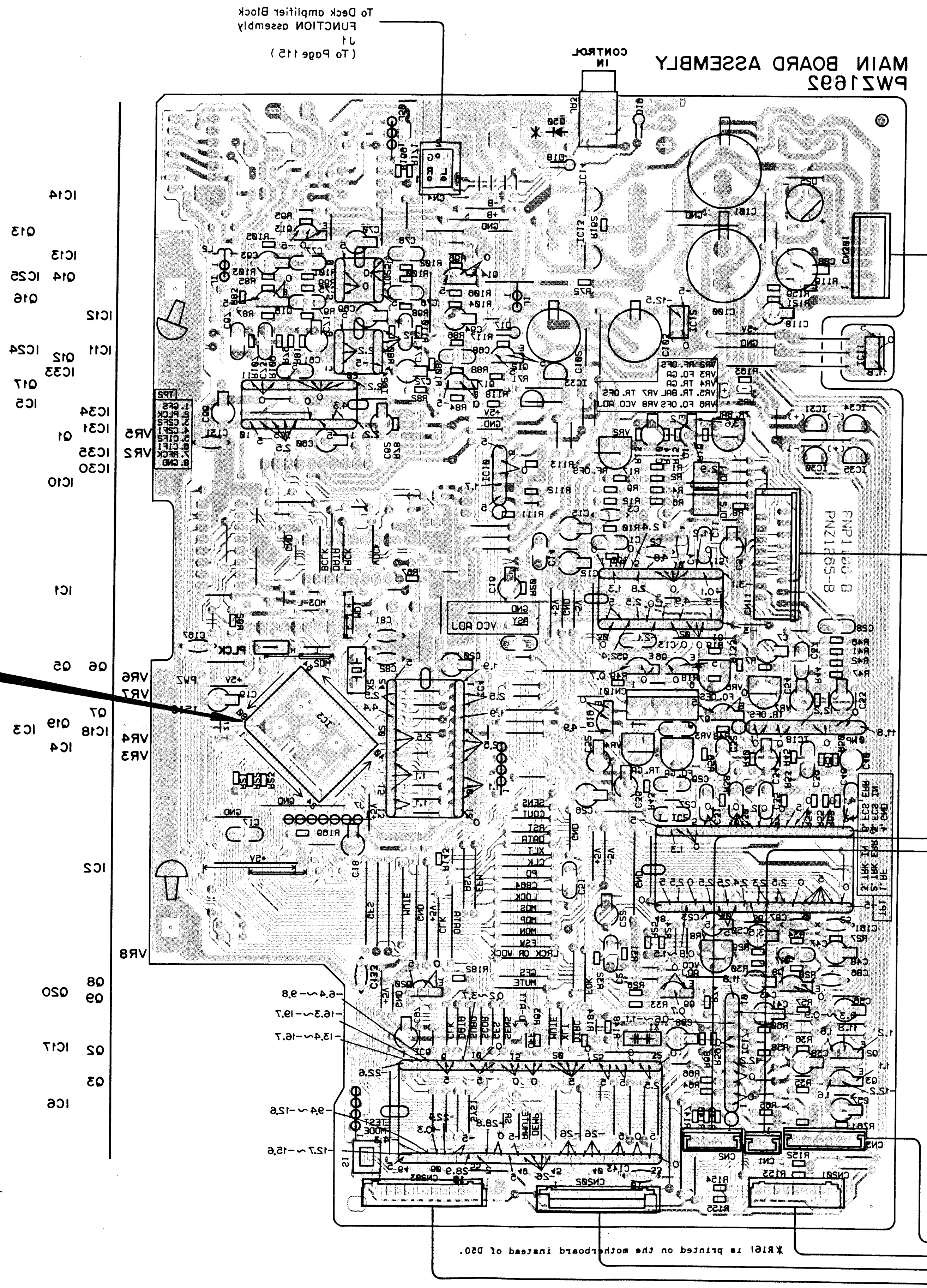


P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transistor
		FET
		Diode
		Zenner diode
		LED
		Varactor
		Tact switch
		Inductor
		Coil
		Transformer
		Filter
		Ceramic capacitor
		Mylar capacitor
		Styrol capacitor
		Electrolytic capacitor (Non polarized)
		Electrolytic capacitor (Noiseless)
		Electrolytic capacitor (Polarized)
		Electrolytic capacitor (Polarized)
		Power capacitor
		Semi-fixed resistor
		Resistor array
		Resistor
		Resonator
		Thermistor

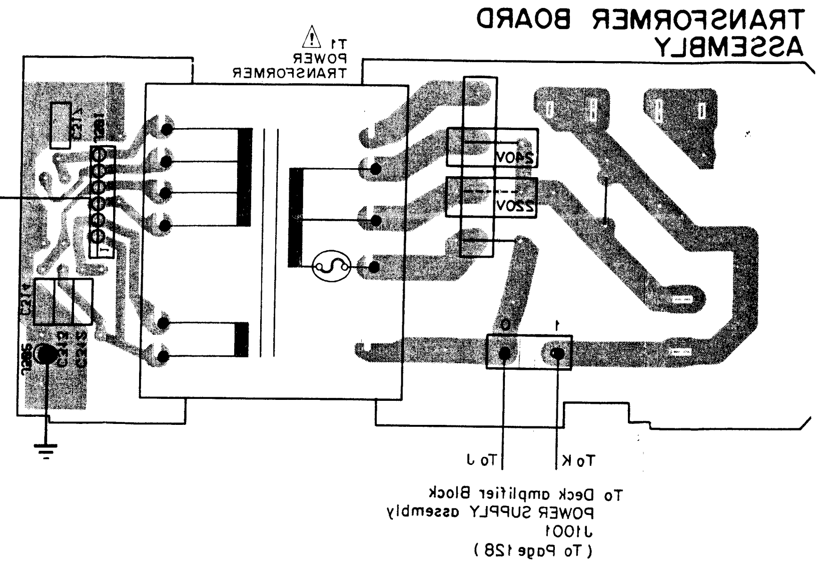
1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with ▭ shows negative terminal.
4. The diode marked with ○ shows cathode side.
5. The transistor terminal marked with ▭ shows emitter.

IC3 (CXD1130QZ) terminal voltages.

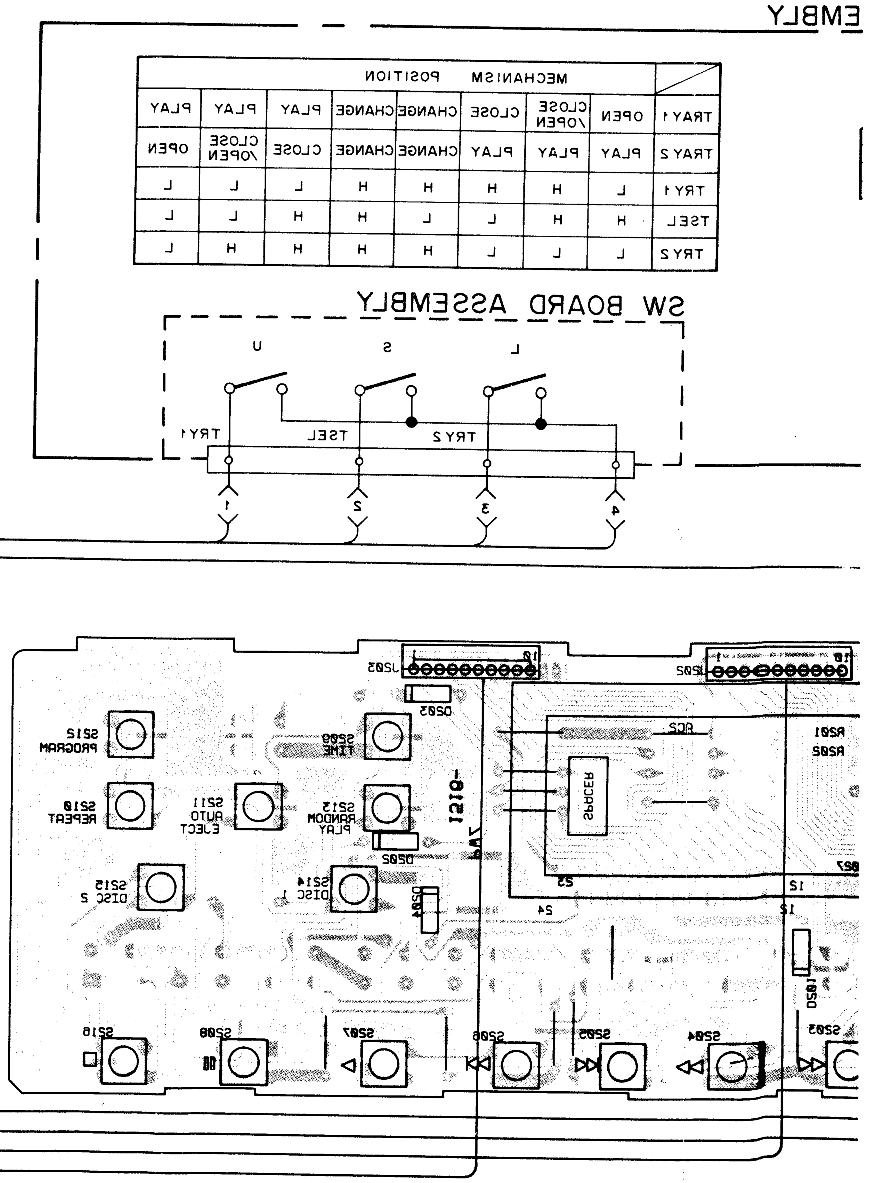
1	2.5
2	5
3	2.5
4	2.8
5	2.4
6	2.5
7	5
8	2.4
9	
10	0
11	1.8
12	0
13	-5
14	
15	
16	
17	0
18	5
19	0
20	5
21	0
22	
23	0.2~3.7
24	0
25	5
26	
27	2.5
28	5
29	1.1
30	
31	
32	
33	5
34	1.1
35	
36	
37	
38	2.5
39	
40	
41	
42	1.9
43	2.5
44	
45	1.9
46	2.5
47	
48	
49	4.2
50	2.5
51	2.3
52	0
53	2.2
54	
55	5
56	0
57	
58	
59	
60	1.3
61	
62	0
63	
64	
65	
66	
67	
68	2.5
69	
70	2.3
71	5
72	0
73	5
74	0
75	2.4
76	2.3
77	
78	1.2
79	2.5
80	


MAIN BOARD ASSEMBLY
PWZ1692
To Deck amplifier Block
FUNCTION assembly
J1
(To Page 115)
CONTROL IN
IC14
Q13
IC13
IC25
Q14
Q16
IC12
IC11
IC24
Q12
IC33
Q17
IC5
IC34
IC31
Q1
IC35
IC30
IC10
VR5
VR2
IC1
Q6
Q5
VR6
VR7
Q7
Q19
IC3
IC18
IC4
VR4
VR3
IC2
VR8
Q8
Q9
Q20
IC17
Q2
Q3
IC6
PWZ1565-B
FNP1565-B
CN1
CN2
CN3
CN201
CN202
CN203

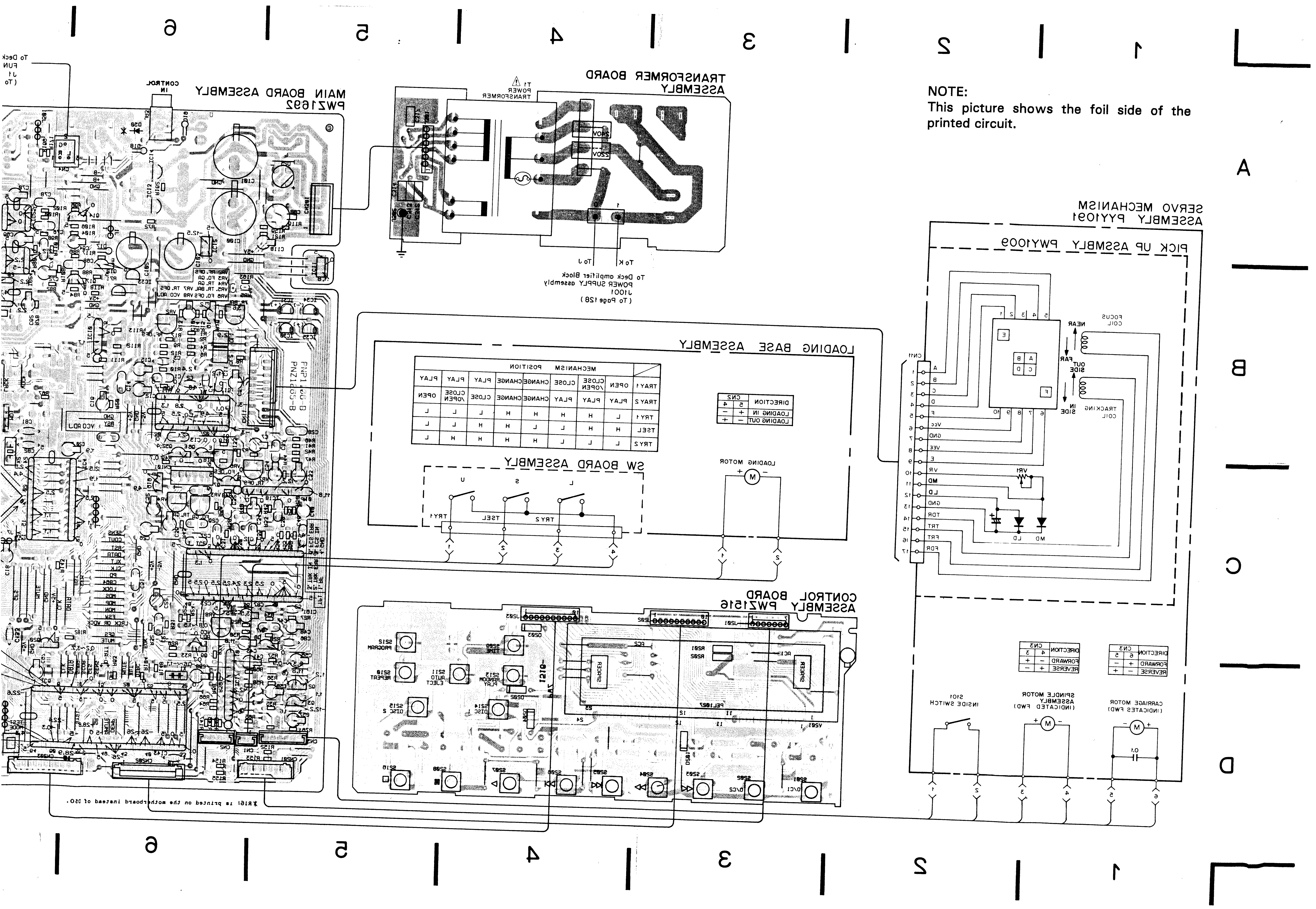
※R161 is printed on the motherboard instead of D50.


TRANSFORMER BOARD
ASSEMBLY
T1 ⚠
POWER
TRANSFORMER
240V
220V
To J
To K
To Deck amplifier Block
POWER SUPPLY assembly
J1001
(To Page 128)

	MECHANISM	POSITION						
TRAY1	OPEN	CLOSE /OPEN	CLOSE	CHANGE	CHANGE	PLAY	PLAY	PLAY
TRAY2	PLAY	PLAY	PLAY	CHANGE	CHANGE	CLOSE	CLOSE /OPEN	OPEN
TRY1	L	H	H	H	H	L	L	L
TSEL	H	H	L	L	H	H	L	L
TRY2	L	L	L	H	H	H	H	L


EMBLY
SW BOARD ASSEMBLY
L
S
U
TRY1
TSEL
TRY2
S212 PROGRAM
S209 TIME
S210 REPEAT
S211 AUTO EJECT
S213 RANDOM PLAY
S215 DISC 2
S214 DISC 1
S216
S208
S207
S206
S205
S204
S203
SPGR5

NOTE:
This picture shows the foil side of the printed circuit.


MAIN BOARD ASSEMBLY
PWZ1692
CONTROL IN
To Deck FUN J1 (To
TRANSFORMER BOARD ASSEMBLY
T1 POWER TRANSFORMER
To J
To K
To Deck amplifier Block POWER SUPPLY assembly J1001 (To Page 128)
LOADING BASE ASSEMBLY
PNZ1265-B
LOADING MOTOR
SW BOARD ASSEMBLY
TRY1
TSEL
TRY2
U
S
L
CONTROL BOARD ASSEMBLY PWZ1516
S212 PROGRAM
S210 REPEAT
S211 AUTO EJECT
S213 RANDOM PLAY
S209 TIME
S215 DISC 5
S214 DISC 4
SERVO MECHANISM ASSEMBLY PYY1091
PICK UP ASSEMBLY PWY1009
FOCUS COIL
TRACKING COIL
NEAR
FAR
OUT SIDE
IN SIDE
CN11
VR1
LD
MD
S101 INSIDE SWITCH
SPINDLE MOTOR ASSEMBLY (INDICATED FWD)
CARRIAGE MOTOR (INDICATES FWD)
0.1
A
B
C
D
※R161 is printed on the motherboard instead of D50.

	MECHANISM POSITION							
TRAY 1	OPEN	CLOSE /OPEN	CLOSE	CHANGE	CHANGE	PLAY	PLAY	PLAY
TRAY 2	PLAY	PLAY	PLAY	CHANGE	CHANGE	CLOSE	CLOSE /OPEN	OPEN
TRY 1	L	H	H	H	H	L	L	L
TSEL	H	H	L	L	H	H	L	L
TRY 2	L	L	L	H	H	H	H	L

DIRECTION	CN2	
	5	4
LOADING IN	+	−
LOADING OUT	−	+

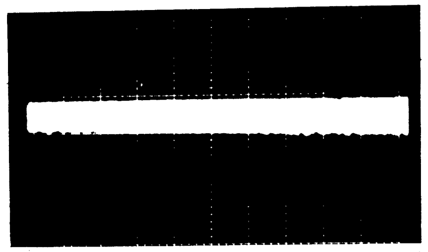
DIRECTION	CN3	
	4	3
FORWARD	−	+
REVERSE	+	−

DIRECTION	CN3	
	6	5
FORWARD	+	−
REVERSE	−	+

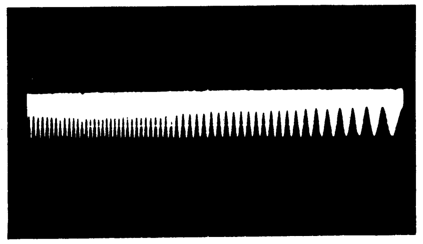
WAVEFORMS

NOTE: The encircled numbers denote measuring points in the circuit and pattern diagrams.

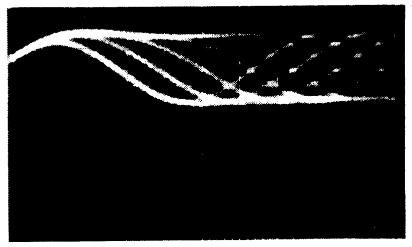
① CN11-5 Pin : PLAY MODE
100mV/div 5m sec/div



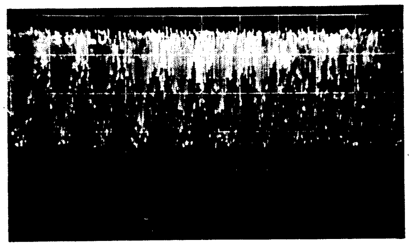
① CN11-5 Pin: SEARCH MODE
100mV/div 5m sec/div



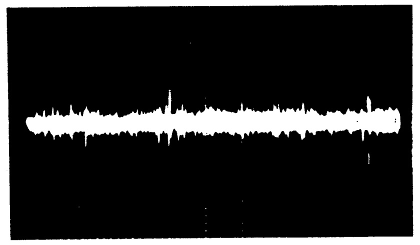
② TP1-1 Pin: PLAY
1V/div 200n sec/div



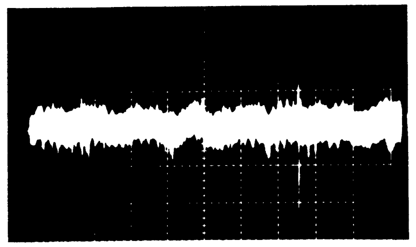
② TP1-1 Pin: SEARCH
500mV/div 5m sec/div



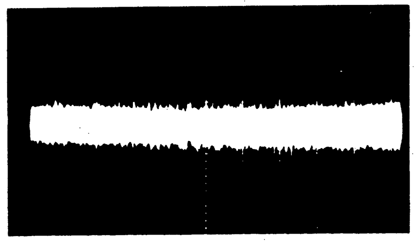
③ TP1-6 Pin: PLAY
500mV/div 10m sec/div



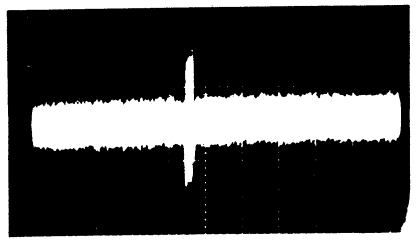
③ TP1-6 Pin: SEARCH
500mV/div 10mS/div



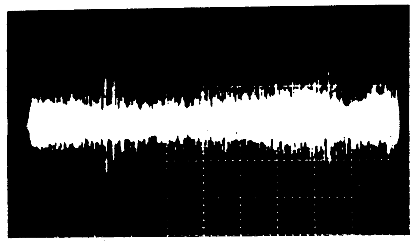
④ TP1-2 Pin: PLAY
1V/div 10mS/div



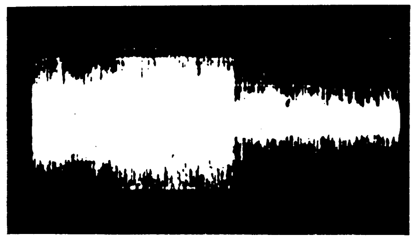
④ TP1-2 Pin: SEARCH
1V/div 10mS/div



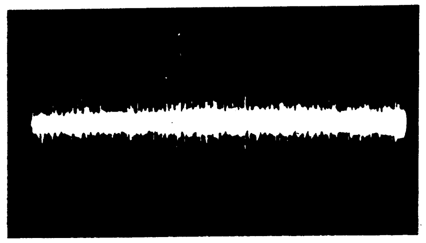
⑤ IC18-1 Pin: PLAY
2V/div 10mS/div



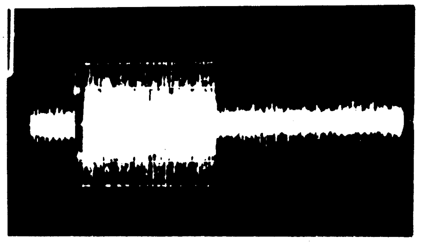
⑤ IC18-1 Pin: SEARCH
2V/div 10mS/div



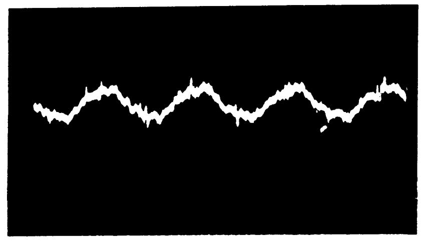
⑥ IC18-9 Pin: PLAY
2V/div 10mS/div



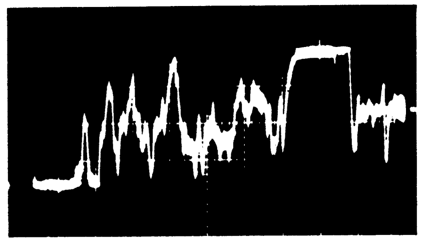
⑥ IC18-9 Pin: SEARCH
2V/div 10mS/div



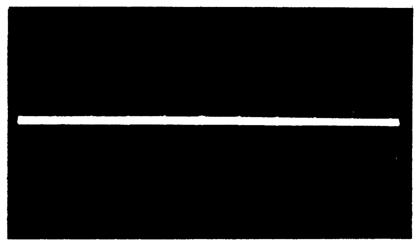
⑦ Q2E: PLAY
2V/div 50mS/div



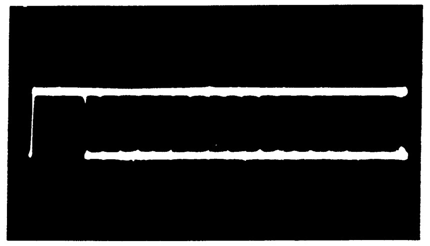
⑦ Q2E: SEARCH
2V/div 100mS/div



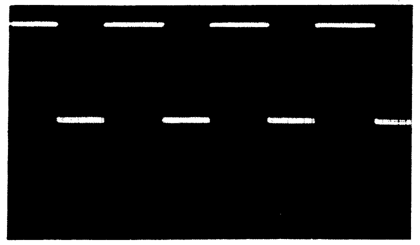
⑧ IC2, 33, 34 Pin: PLAY
2V/div 10mS/div



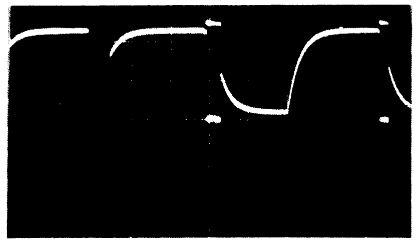
⑨ IC1 27 Pin: PLAY
2V/div 500m sec/div



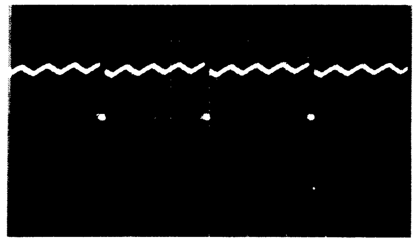
⑩ IC3-4: PLAY
2V/div 50μS/div



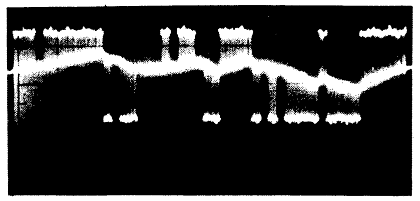
⑩ IC3-4: SEARCH
2V/div 100mS/div



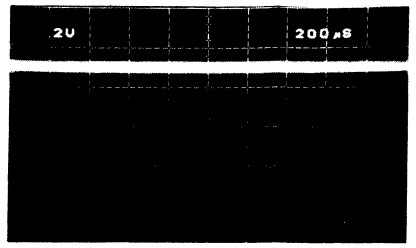
⑪ IC3-3: PLAY
2V/div 200μS/div



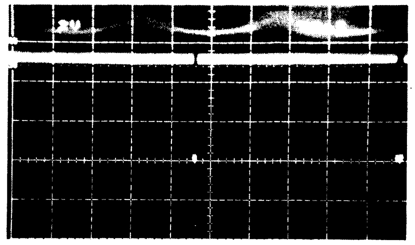
⑪ IC3-3: SEARCH
2V/div 10mS/div



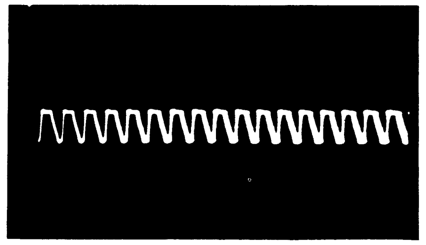
⑫ TP2-1: PLAY
2V/div 200μS/div



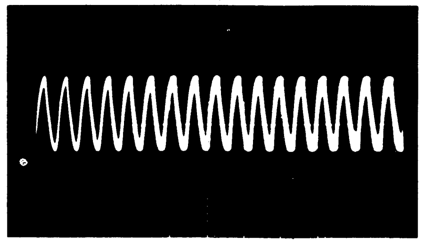
⑫ TP2-1: SEARCH
2V/div 20mS/div



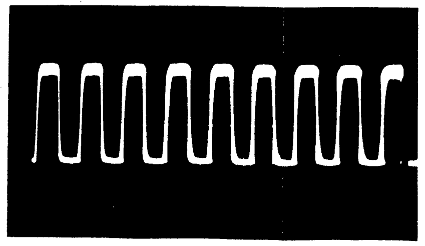
⑬ IC2-38: PLAY
2V/div 200μS/div



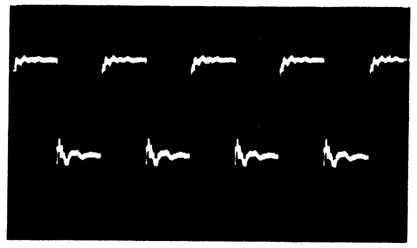
⑭ IC3-8: PLAY
2V/div 200μS/div



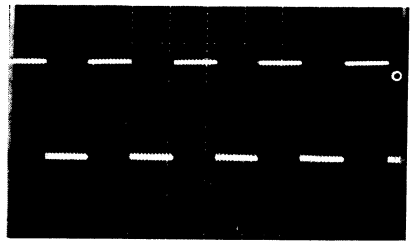
⑮ TP2-2: PLAY
2V/div 200μS/div



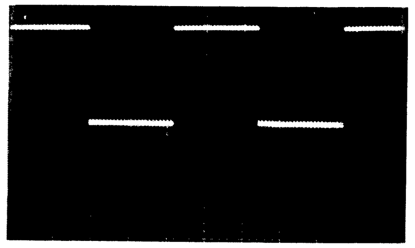
⑯ IC3-76: STOP
2V/div 200mS/div



⑰ IC3-79: STOP
2V/div 5μS/div

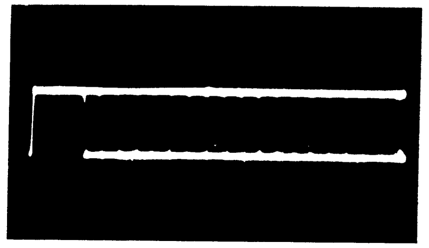


⑱ IC3-80: STOP
2V/div 5μS/div

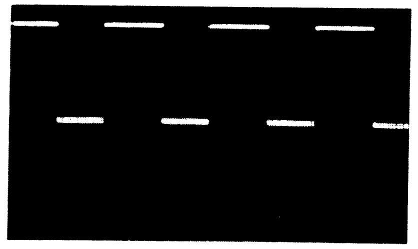


cuit and

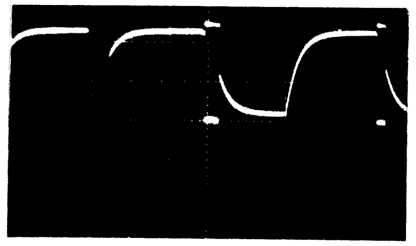
⑨ IC1 27 Pin: PLAY
2V/div 500m sec/div



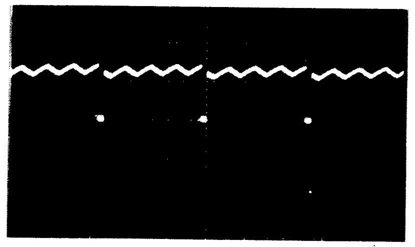
⑩ IC3-4: PLAY
2V/div 50µS/div



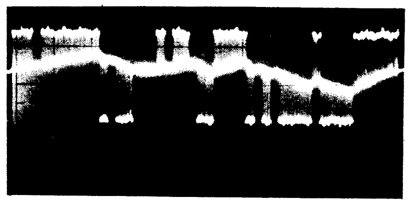
⑩ IC3-4: SEARCH
2V/div 100mS/div



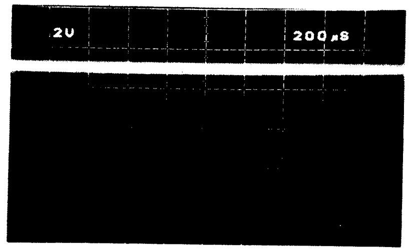
⑪ IC3-3: PLAY
2V/div 200µS/div



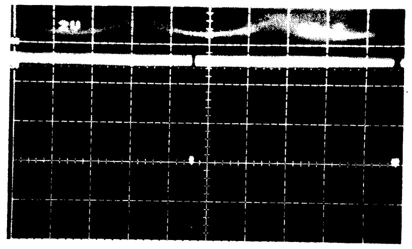
⑪ IC3-3: SEARCH
2V/div 10mS/div



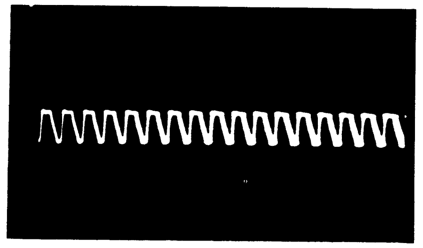
⑫ TP2-1: PLAY
2V/div 200µS/div



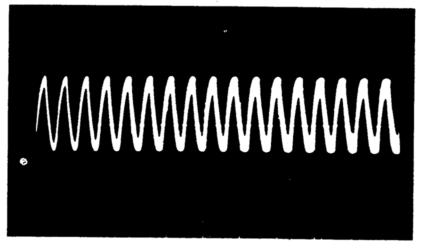
⑫ TP2-1: SEARCH
2V/div 20mS/div



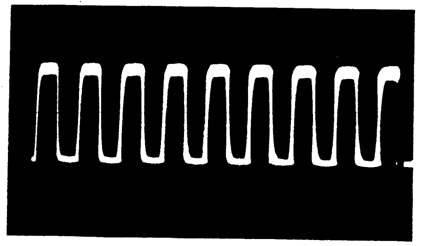
⑬ IC2-38: PLAY
2V/div 200µS/div



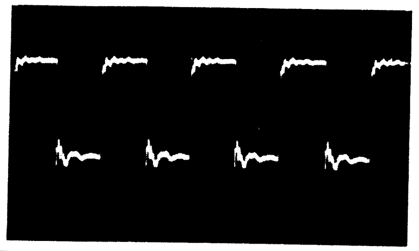
⑭ IC3-8: PLAY
2V/div 200µS/div



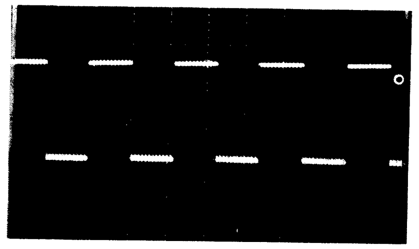
⑮ TP2-2: PLAY
2V/div 200µS/div



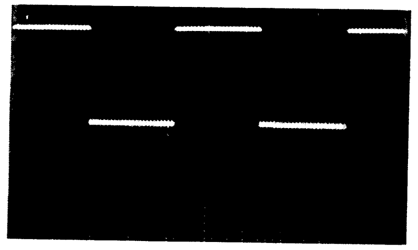
⑯ IC3-76: STOP
2V/div 200mS/div



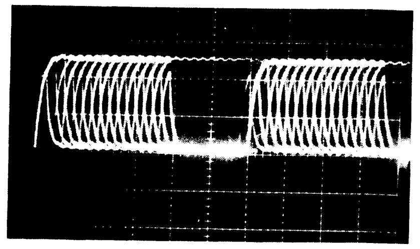
⑰ IC3-79: STOP
2V/div 5µS/div



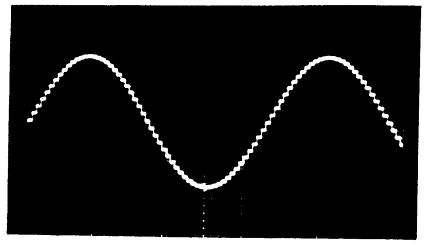
⑱ IC3-80: STOP
2V/div 5µS/div



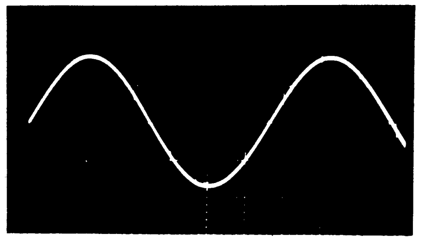
⑲ IC3-78: STOP
2V/div 1µS/div



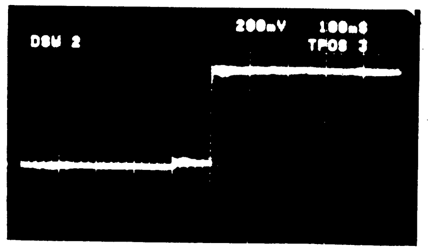
⑳ IC5-9: PLAY
2V/div 50µS/div



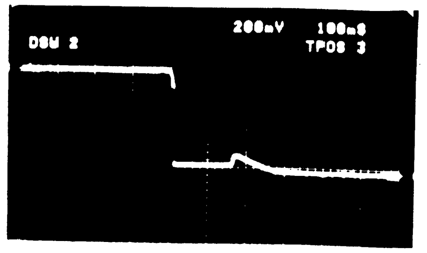
㉑ OUTPUT Lch: PLAY
2V/div 50µS/div



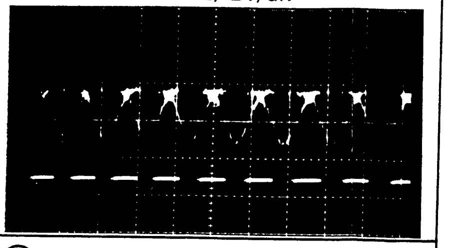
㉒ IC10-5: POWER ON
2V/div 100mS/div



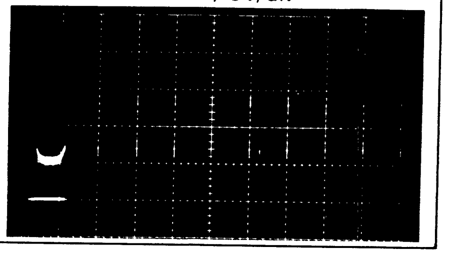
㉒ IC10-5: POWER-OFF
2V/div 100mS/div



㉓ IC1-22: TR OPEN
1mS/div
Upper TP1-1, 1V/div
Lower IC1-22, 2V/div



㉔ IC1-21: DFCT
1mS/div
Upper TP1-1, 1V/div
Lower IC1-21, 5V/div



9.5 ELECTRICAL PARTS LIST

NOTES :

- Parts without part number cannot be supplied.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The ⚠ mark found on some component parts indicates the impotance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω　56×10¹　561 ……………… RD1／4PS[5][6][1]J
47k Ω　47×10³　473 ……………… RD1／4PS[4][7][3]J
0.5 Ω　0R5 ……………… RN2H[0][R][5]K
1 Ω　010 ……………… RS1P[0][1][0]K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω　562×10¹　5621 ……………… RN1／4SR[5][6][2][1]F

Miscellaneous Parts

P. C. BOARD ASSEMBLIES

Mark	Symbol & Description	Part No.
⚠⊙	Main board assembly	PWZ1692
⊙	Control board assembly	PWZ1516
	Transformer board assembly	
	Switch board assembly	

OTHERS

Mark	Symbol & Description	Part No.
⚠	Power transformer	PTT1092
	Semiconductive ceramic capacitor	CGDYX104M25
	S101 Slide switch (INSIDE)	PSH1003
	Spindle motor assembly (with oil)	PYY1109
	Motor (CARRIAGE, LOADING)	PXM1002
	Pick-up assembly	PWY1009
	Motor assembly (CARRIAGE)	PYY1025
	Motor assembly (LOADING)	PYY1089

⚠⊙ Main Board Assembly (PWZ1692)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC1	CXA1081S
	IC2	CXA1082BS
	IC3	CXD1130QZ
⚠	IC30, IC31, IC33-IC35	ICP-N10
	IC5	LC7881-C
	IC4	LH5116-15
	IC10	M51957AL
	IC24, IC25	NJM4558D-D
⚠	IC11	NJM78M05FA
⚠	IC12	NJM79M05FA
	IC6	PD3143
⚠	IC17, IC18	TA8410K (V15)
	Q6	DTA124ES
	Q12, Q19, Q20, Q22	DTC124ES
	Q1, Q3	2SA1399
	Q7	2SA933S
	Q5, Q8, Q9, Q16, Q17	2SC1740S
	Q2	2SC3581
	Q13, Q14	2SD1302
⚠	D25	WL02ML-5004
⚠	D10	1SR139-100
	D17-D19, D50	1SS254

SWITCH

Mark	Symbol & Description	Part No.
	S1 Tact switch (TEST)	PSG1002

CAPACITORS

Mark	Symbol & Description	Part No.
	C81, C82	CCCCH300J50
	C3	CCCCH390J50
	C87	CCCSL101J50
	C161	CCCSL221J50
	C40	CEANP4R7M25
	C2, C4	CCPUSL330J50
	C16, C22	CEASR47M50
	C10, C43	CEAS101M10
	C62, C88, C5	CEAS101M35
	C102, C103	CEAS102M10
	C71, C72, C93, C94	CEAS220M25
	C118	CEAS220M35
	C100, C101	CEAS222M16
	C48	CEAS3R3M50
	C7, C12, C15, C18, C20, C23, C26, C36, C38, C41, C50, C52-C54, C56, C57, C60, C66, C69, C70, C97	CEAS330M16
	C34	CEAS4R7M50
	C85	CEASR33M50
	C19	CEAS471M6R3
	C86, C167	CKCYF103Z50
	C131, C133	CKCYF473Z50
	C30, C51	CQMA102K50
	C14, C17, C46, C61	CQMA103K50
	C31, C32, C35, C39	CQMA104K50
	C29	CQMA272J50
	C13	CQMA332J50
	C11, C21, C28, C37	CQMA333K50
	C77, C78	CQMA471J50
	C1, C27, C47	CQMA472J50
	C75, C76	CQMA561J50
	C73, C74	CQMA562J50
	C67, C68	CQMA683J50

RESISTORS

Mark	Symbol & Description	Part No.
	R30	RN⅙PQ3601F
	VR2 Semi-fixed resistor (10k)	VRTB6VS103
	VR3-VR7 Semi-fixed resistor (22k)	VRTB6VS223
	VR8 Semi-fixed resistor (1k)	VRTS6VS102
	Other resistors	RD⅙PM☐☐☐J

OTHERS

Mark	Symbol & Description	Part No.
	JA3 Mini jack (CONTROL IN)	RKN1004
	X2 Crystal resonator	PSS-012
	X1 Ceramic resonator	VSS1014

⊙ Control Board Assembly (PWZ1516)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	D201-D204	1SS254

SWITCHES

Mark	Symbol & Description	Part No.
	S201-S216 Tact switch (OPEN／CLOSE DISC I, OPEN／CLOSE DISC II, ◀◀, ▶▶, ⏮, ⏭, ▶, ❚❚, TIME,REPEAT, AUTO EJECT, PGM, RAMDOM PLAY, DISC I, DISC II, ■)	PSG1003

RESISTORS

Mark	Symbol & Description	Part No.
	R201, R202	RD¼PM101J

OTHER

Mark	Symbol & Description	Part No.
	V201 Fluorescent indicator tube	PEL1027

⚠ Transformer Board Assembly

CAPACITORS

Mark	Symbol & Description	Part No.
	C312-C314, C317	CKPYX103N25

Switch Board Assembly

SWITCHES

Mark	Symbol & Description	Part No.
	S601-S603 Push switch (U, S, L)	PSH1008

9.6 ADJU

The adjustment
must be made
OPEN/CLOSE
during test mod

- **Adjustment**

1. Tracking o
2. RF level ad
3. LD (Laser
4. Focus lock
5. Grating adj
6. Tracking a
7. Tangential
8. Focus gain
9. Tracking g
10. VCO free-
11. Confirmati

- **Measuring**

1. Dual trace
2. Laser powe
3. Test disc (
4. Loop gain
5. Signal gen
6. Frequency
7. Other gene

Adjustment poir

Mark	Symbol & Description	Part No.
	C31, C32, C35, C39	CQMA104K50
	C29	CQMA272J50
	C13	CQMA332J50
	C11, C21, C28, C37	CQMA333K50
	C77, C78	CQMA471J50
	C1, C27, C47	CQMA472J50
	C75, C76	CQMA561J50
	C73, C74	CQMA562J50
	C67, C68	CQMA683J50

RESISTORS

Mark	Symbol & Description	Part No.
	R30	RN ⅙ PQ3601F
	VR2 Semi-fixed resistor (10k)	VRTB6VS103
	VR3-VR7 Semi-fixed resistor (22k)	VRTB6VS223
	VR8 Semi-fixed resistor (1k)	VRTS6VS102
	Other resistors	RD ⅙ PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	JA3 Mini jack (CONTROL IN)	RKN1004
	X2 Crystal resonator	PSS-012
	X1 Ceramic resonator	VSS1014

⊙Control Board Assembly (PWZ1516)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	D201-D204	1SS254

SWITCHES

Mark	Symbol & Description	Part No.
	S201-S216 Tact switch (OPEN/CLOSE DISC I, OPEN/CLOSE DISC II, ◀◀, ▶▶, ⏮, ⏭, ▶, ❚❚, TIME,REPEAT, AUTO EJECT, PGM, RAMDOM PLAY, DISC I, DISC II, ■)	PSG1003

RESISTORS

Mark	Symbol & Description	Part No.
	R201, R202	RD¼PM101J

OTHER

Mark	Symbol & Description	Part No.
	V201 Fluorescent indicator tube	PEL1027

⚠Transformer Board Assembly

CAPACITORS

Mark	Symbol & Description	Part No.
	C312-C314, C317	CKPYX103N25

Switch Board Assembly

SWITCHES

Mark	Symbol & Description	Part No.
	S601-S603 Push switch (U, S, L)	PSH1008

9.6 ADJUSTMENTS

The adjustment items for this unit are shown below. Adjustments must be made in the order in which they are listed. As OPEN/CLOSE operation for disc tray 2 cannot be performed during test mode, use tray 1 for adjustments.

• Adjustment and check Items

1. Tracking offset, focus offset and RF offset adjustments
2. RF level adjustment
3. LD (Laser Diode) power check
4. Focus lock and spindle lock check
5. Grating adjustment
6. Tracking adjustment
7. Tangential adjustment
8. Focus gain adjustment
9. Tracking gain adjustment
10. VCO free-run frequency adjustment
11. Confirmation of S character (focus error)

• Measuring Equipment

1. Dual trace oscilloscope
2. Laser power meter
3. Test disc (YEDS-7)
4. Loop gain adjustment filter
5. Signal generator
6. Frequency counter
7. Other general tools

Adjustment points

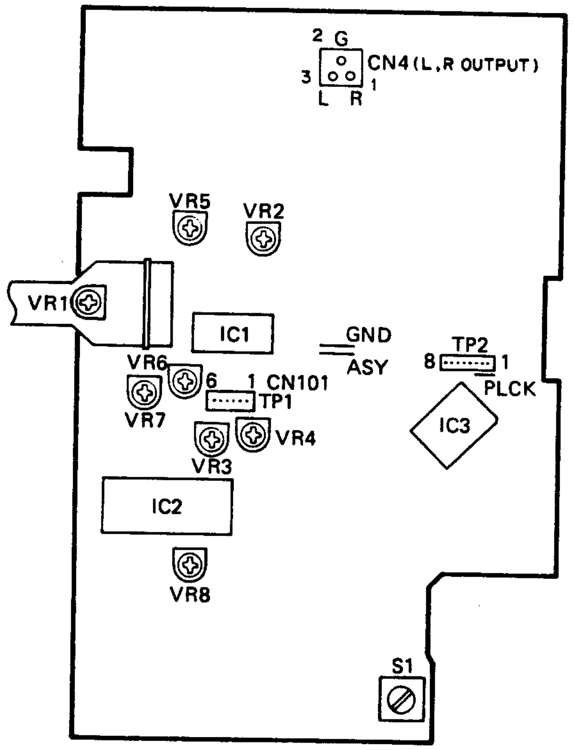


Fig. 9-1.

• Test Mode

Test mode setting and cancellation procedures

(1) To set the test mode, turn ON the power switch (S707) while holding the test mode switch (S1) down.

(2) The test mode is cancelled by turning the power switch OFF.

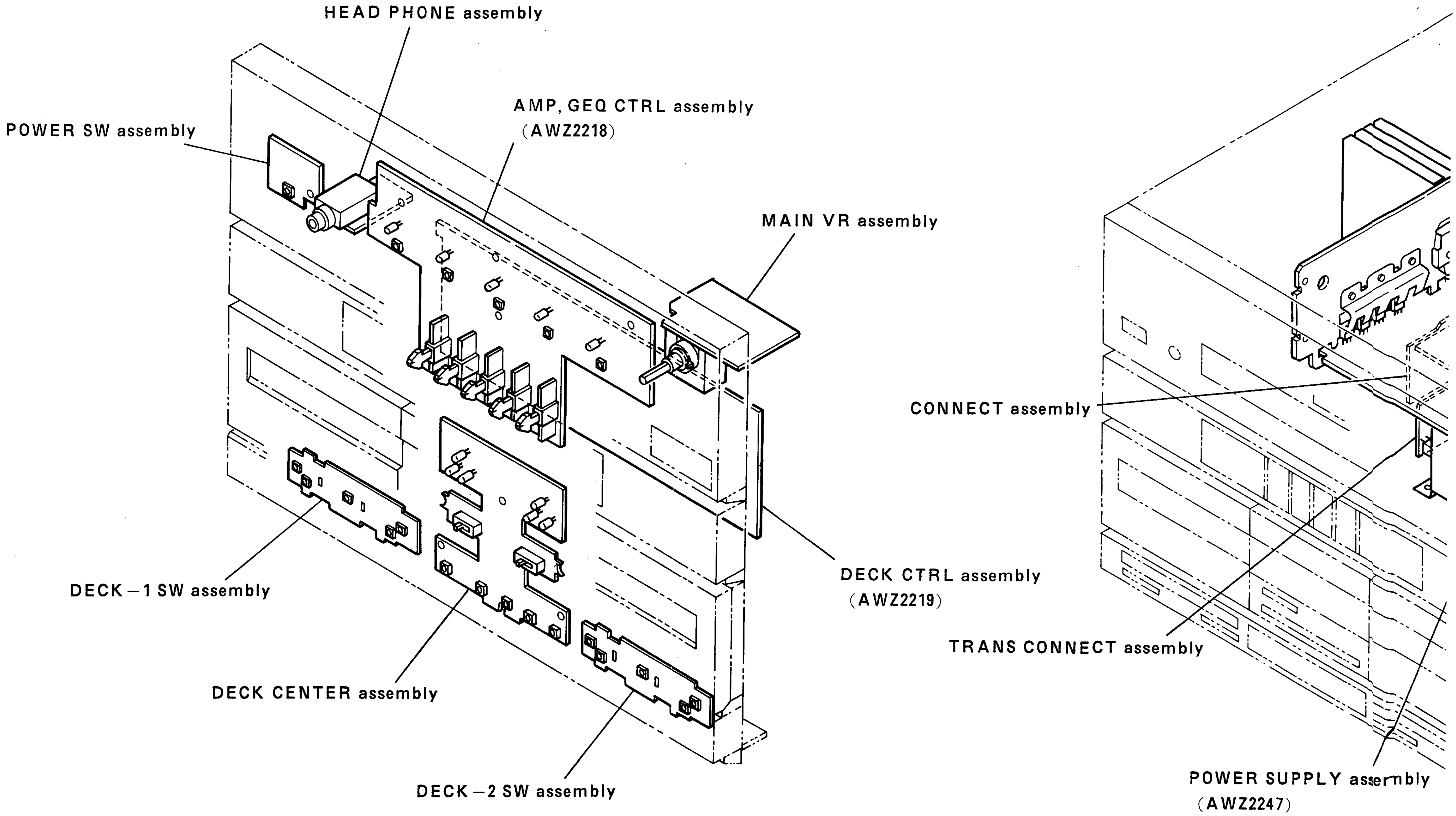
The functions of the keys in the test mode are outlined in Table 9-1.

• Adjustment VRs (Variable Resistors) and Names

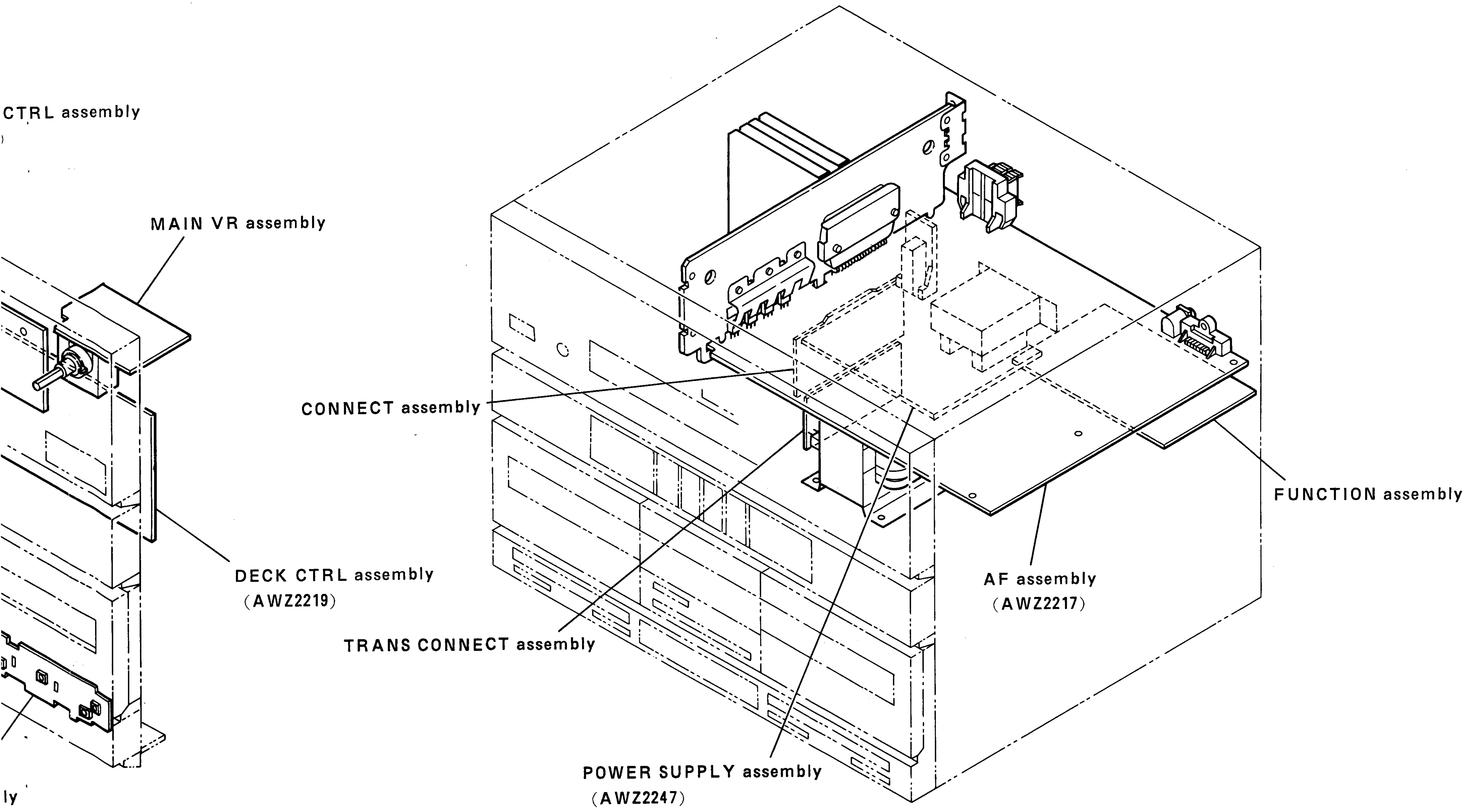
VR1: Laser power
VR2: RF offset (RF. OFS)
VR3: Focus gain (FCS. GAN)
VR4: Tracking gain (TRK. GAN)
VR5: Tracking balance (TRK. BAL)
VR6: Focus offset (FCS.OFS)
VR7: Tracking offset (TRK. OFS)
VR8: VCO free-run adjustment (VCO. ADJ)

10. DECK AMPLIFIER BLOCK

10.1 P.C.BOARDS LOCATION



HEAD PHONE assembly
AMP, GEQ CTRL assembly
(AWZ2218)
POWER SW assembly
MAIN VR assembly
CONNECT assembly
DECK CTRL assembly
(AWZ2219)
DECK-1 SW assembly
TRANS CONNECT assembly
DECK CENTER assembly
DECK-2 SW assembly
POWER SUPPLY assembly
(AWZ2247)


CTRL assembly
MAIN VR assembly
CONNECT assembly
DECK CTRL assembly
(AWZ2219)
TRANS CONNECT assembly
POWER SUPPLY assembly
(AWZ2247)
AF assembly
(AWZ2217)
FUNCTION assembly
ly

10.2 EXPLODED VIEWS, PACKING AND PARTS LIST

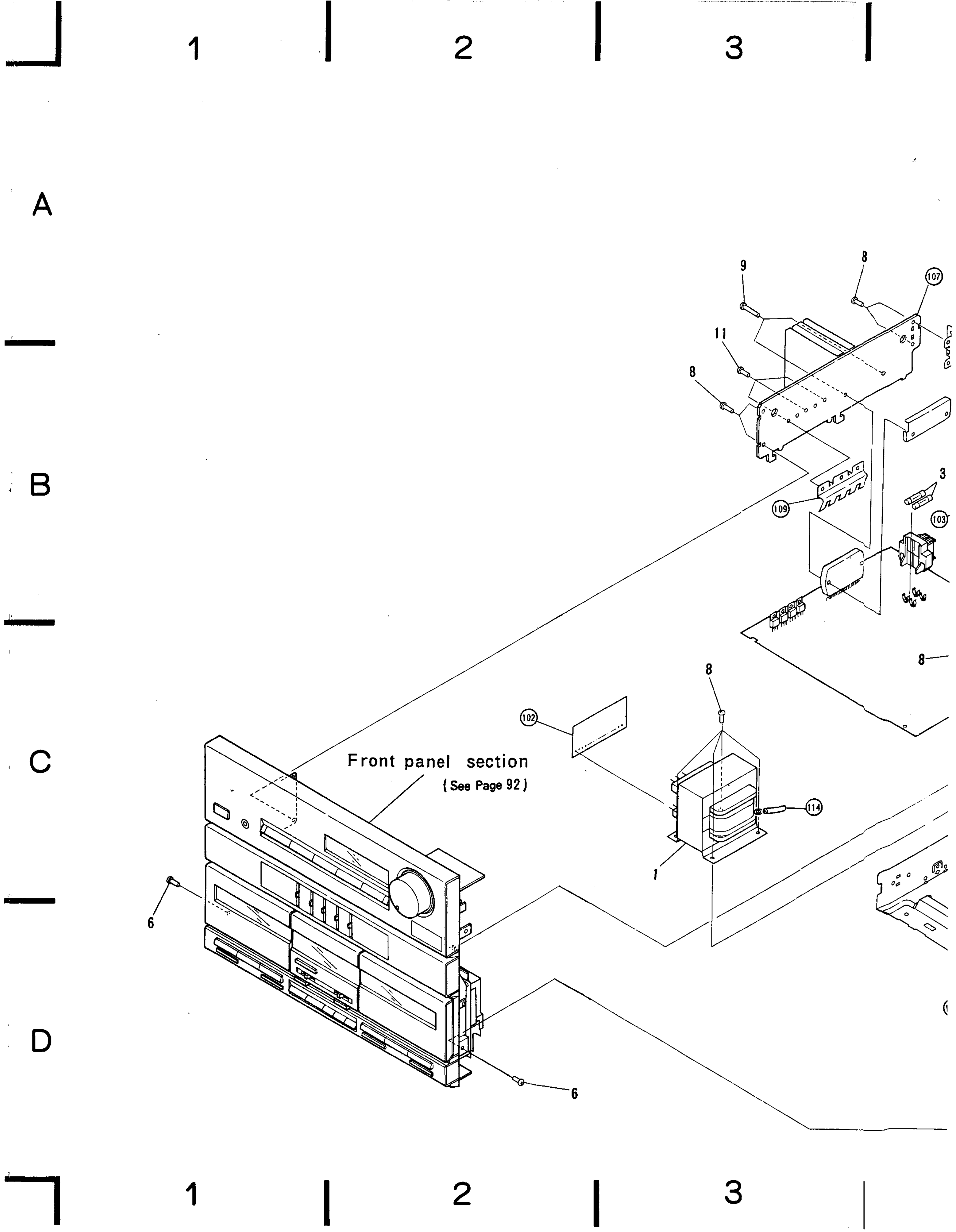
10.2.1 Main body section

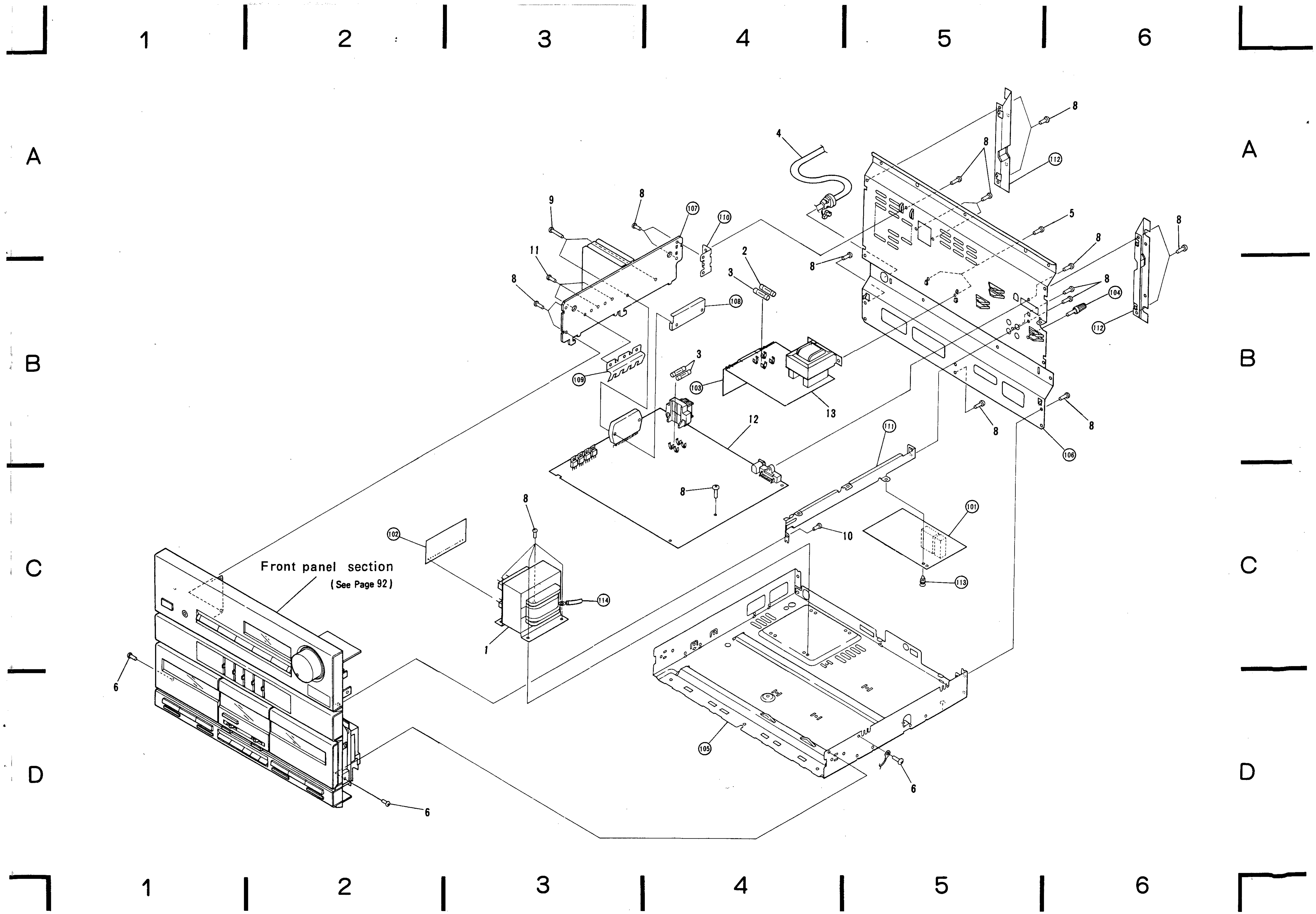
NOTES:

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

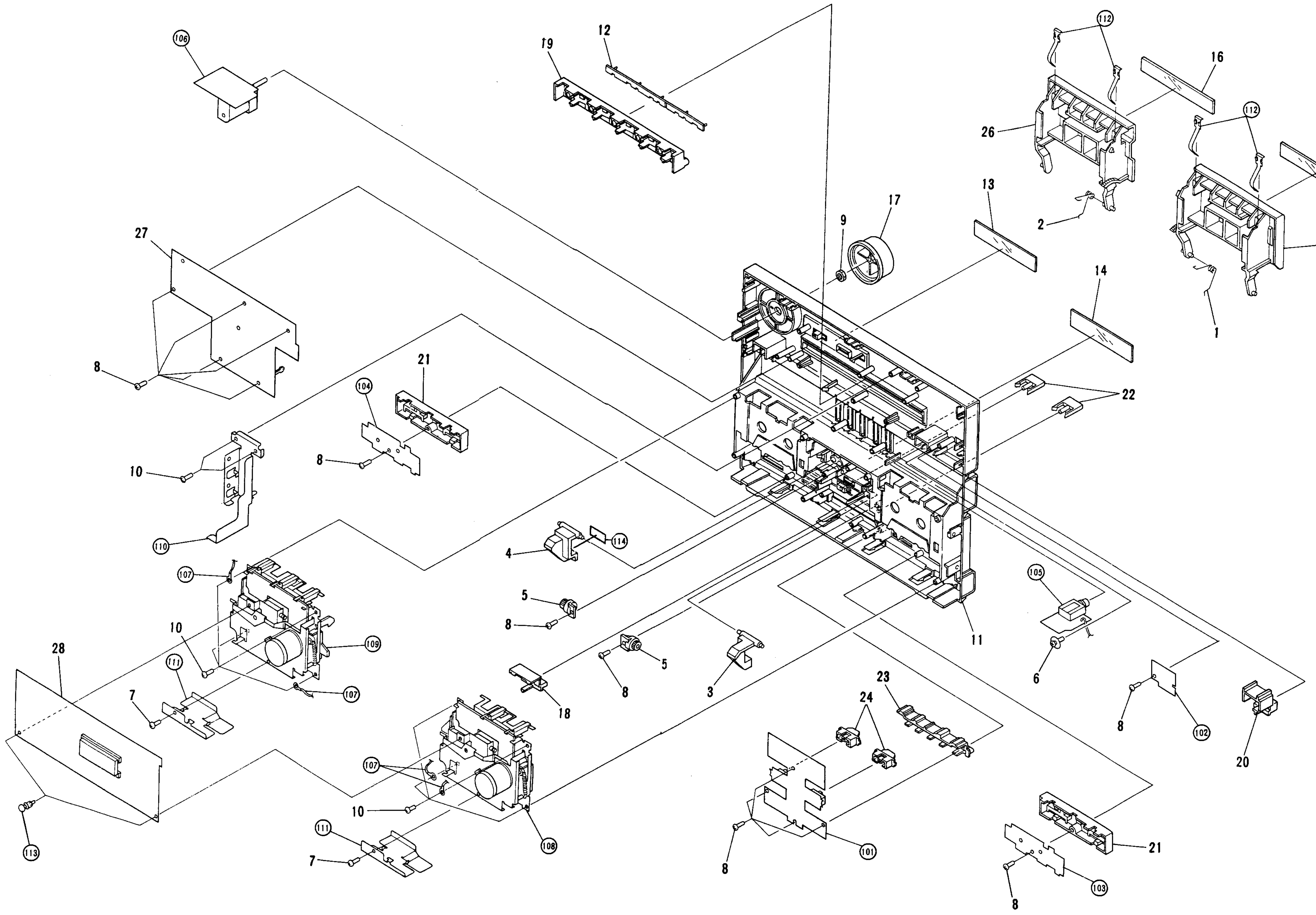
Parts list of Main body section

Mark	No.	Parts No.	Description
⚠	1	ATS1179	Power transformer (T2001)
⚠	2	AEK-507	Fuse (T800mA/250V,FU2003)
⚠	3	AEK-509	Fuse (T1.25A/250A,FU2001,FU2004,FU2005)
⚠	4	ADG-063	AC Power cord
	5	ABA1084	Screw
	6	BBZ30P060FMC	Screw
	7	BBZ30P080FCU	Screw
	8	BBZ30P080FZK	Screw
	9	VBZ30P160FMC	Screw
	10	VPZ30P080FZK	Screw
	11	VTZ30P100FZK	Screw
	12	AWZ2217	AF assembly
	13	AWZ2247	POWER SUPPLY assembly
	101		FUNCTION assembly
	102		TRANS CONNECT assembly
	103		CONNECT assembly
	104		Terminal screw
	105		Chassis
	106		Rear panel A
	107		Heat sink
	108		Plate
	109		Plate
	110		Plate B
	111		Plate
	112		Plate
	113		....
	114		BINDER




A
B
C
D
Front panel section
(See Page 92)
A
B
C
D

10.2.2 Front panel section



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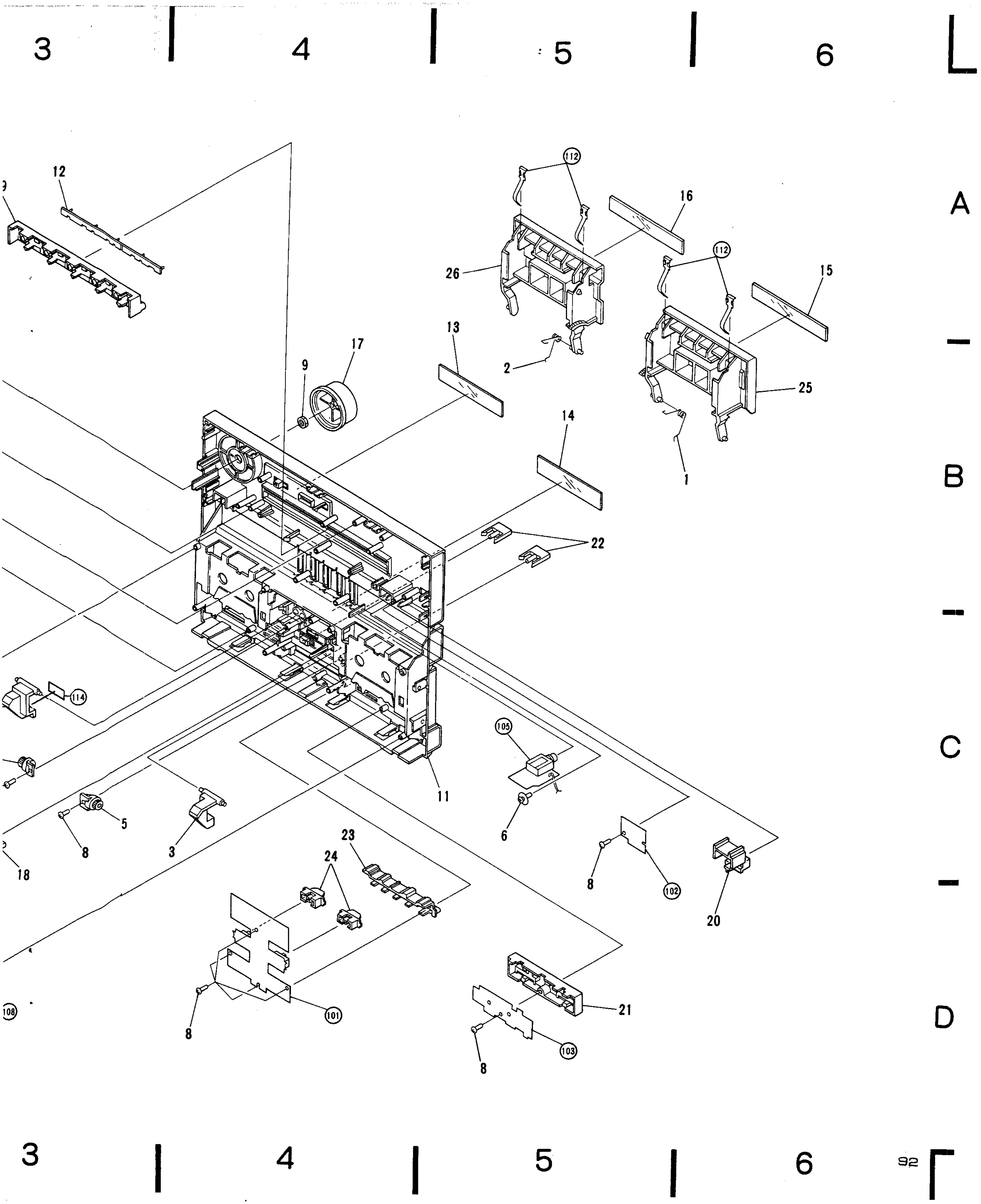


Parts list of Front panel section

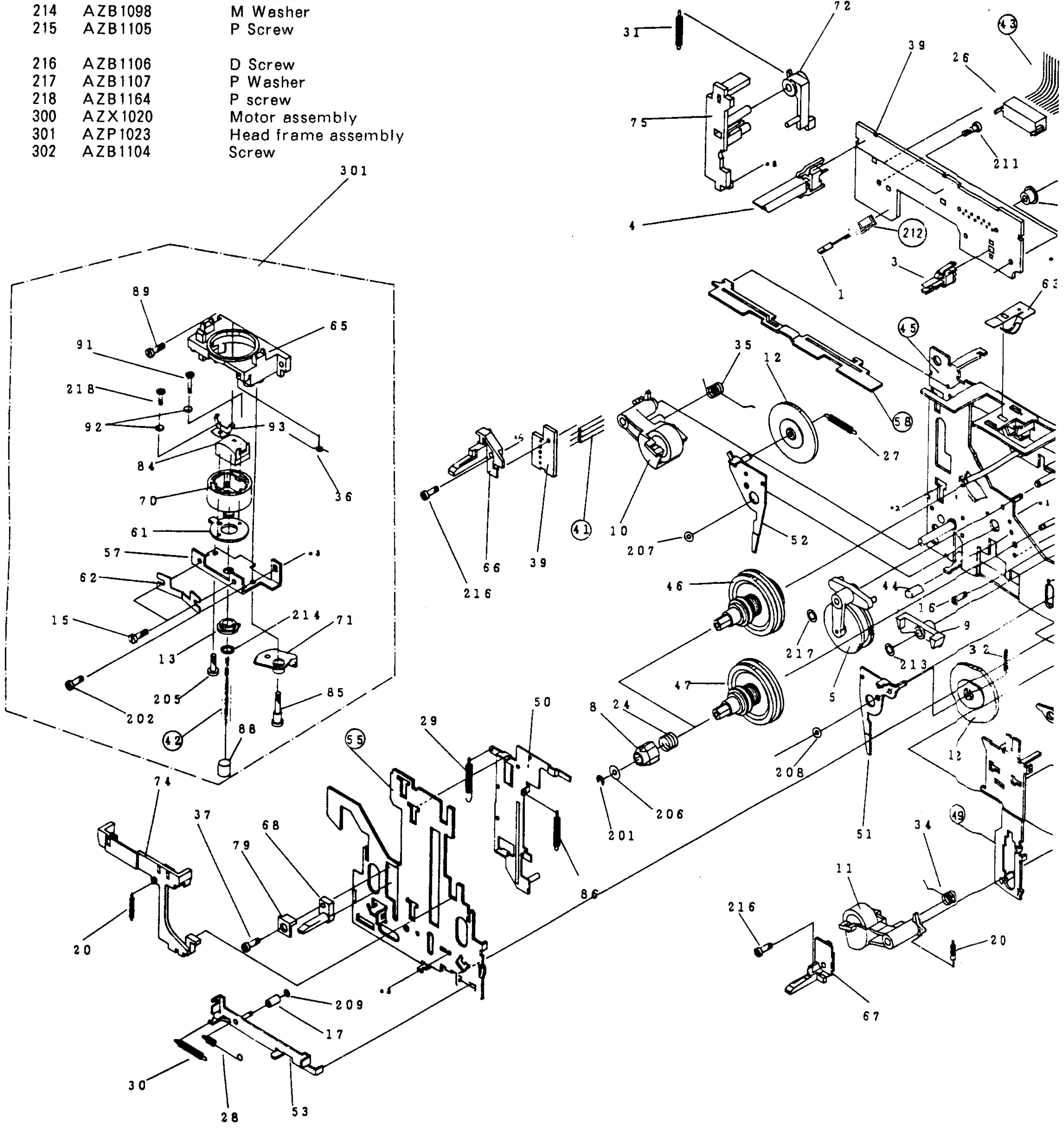
Mark	No.	Parts No.	Description
	1	ABH1050	Spring
	2	ABH1051	Spring
	3	AMR1656	Eject lever-1
	4	AMR1657	Eject lever-2
	5	AXA1005	Damper assembly
	6	ABA-283	Screw (steel)
	7	BBZ26P080FMC	Screw
	8	BPZ26P080FMC	Screw
	9	NK90FUC	Nut
	10	VPZ30P080FZK	Screw
	11	AMB1485	Front panel assembly
	12	AAK1629	Indicator lens
	13	AAK1660	Decorative plate (AMP)
	14	AAK1661	Decorative plate (DECK)
	15	AAK1662	Decorative plate (DOOR)
	16	AAK1664	Decorative plate (DOOR)
	17	AAB1089	Knob (VOLUME)
	18	AAD1515	BUTTON (ASES)
	19	AAD1516	BUTTON (FUNCTION)
	20	AAD1520	BUTTON (POWER)
	21	AAD1525	BUTTON (PLAY)
	22	AAD1528	BUTTON (EJECT)
	23	AAD1529	BUTTON (REC)
	24	AAE1103	Slide knob
	25	AAN1125	Cassette door
	26	AAN1126	Cassette door
	27	AWZ2218	AMP GEQ CTRL assembly
	28	AWZ2219	DECK CTRL assembly
	101		DECK CENTER assembly
	102		POWER SW assembly
	103		DECK-1 SW assembly
	104		DECK-2 SW assembly
	105		HEAD PHONE assembly
	106		MAIN VR assembly
	107		Earth lead
	108		Mecha unit
	109		Mecha unit
	110		Plate A
	111		Shield plate
	112		Keep plate
	113		Nylon revet
	114		SPACER

10.2.3 Mecha unit 1

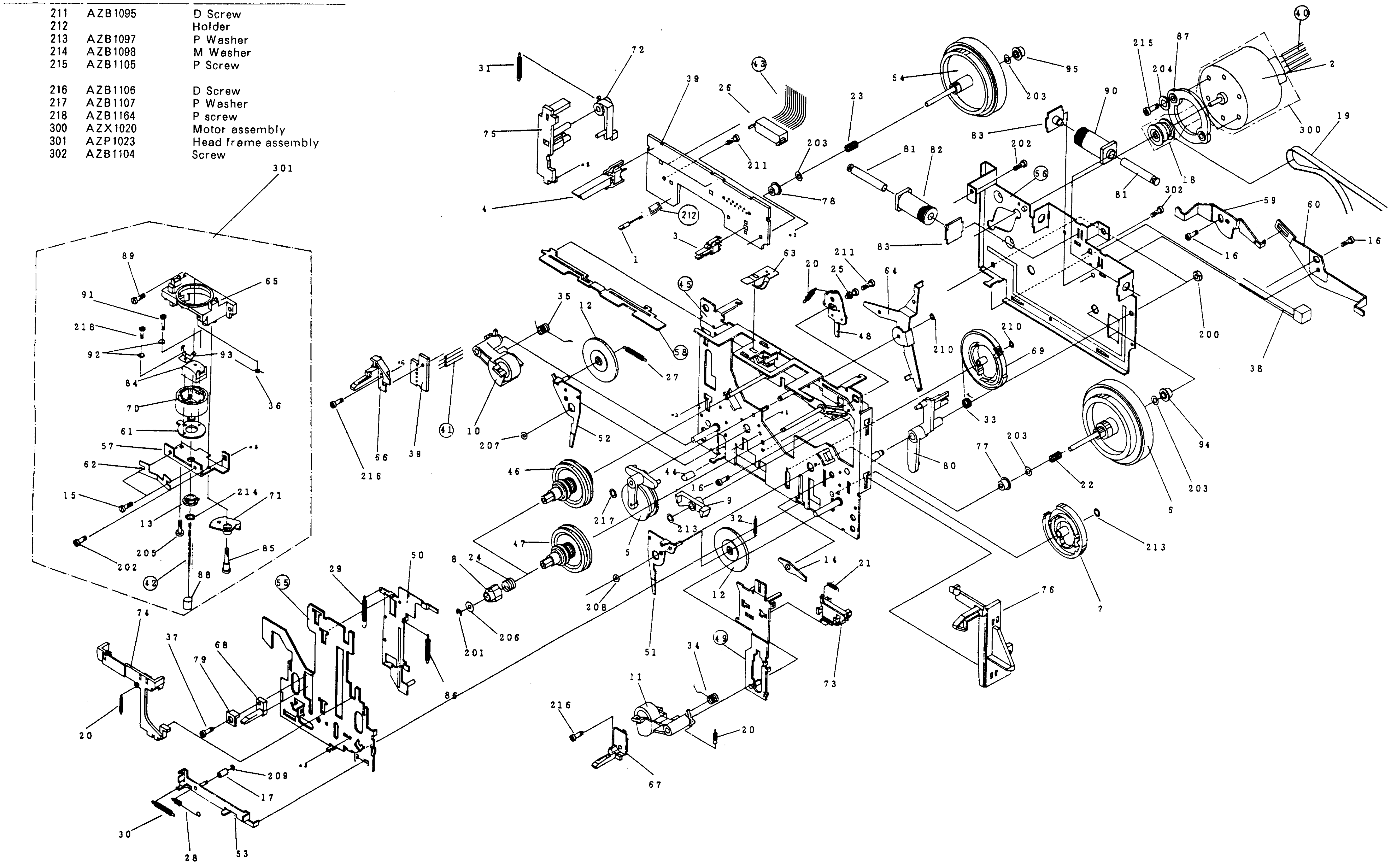
Mark	No.	Parts No.	Description
	1	AZE1018	Hall IC
	2	AZX1019	Motor
	3	AZS1054	Leaf SW(MODE)
	4	AZS1034	Leaf SW (HALF,CrO2)
	5	AZN1286	Drive arm assembly
	6	AZN1287	FW assembly A
	7	AZN1288	Cam gear
	8	AZN1289	Reel
	9	AZN1290	FR arm
	10	AZN1797	P arm L assembly
	11	AZN1798	P arm R assembly
	12	AZN1293	Gear
	13	AZN1294	H Gear
	14	AZN1793	CUE arm
	15	AZB1079	Screw
	16	AZB1080	Screw
	17	AZN1296	Collar C
	18	AZN1297	Motor pully
	19	AZN1298	Belt
	20	AZN1299	Spring
	21	AZN1300	FR lever spring
	22	AZN1301	FWF spring
	23	AZN1302	FWR spring
	24	AZN1303	Spring
	25	AZB1088	Collar
	26	AZN1467	Cable holder
	27	AZN1306	Spring
	28	AZN1307	Spring
	29	AZN1308	Spring
	30	AZN1309	Spring
	31	AZN1310	Spring
	32	AZN1311	Spring
	33	AZN1312	Spring
	34	AZN1313	Spring
	35	AZN1314	Spring
	36	AZN1315	Spring
	37	AZB1081	Screw
	38	AZN1316	Nylon band
	39	AZN1835	P.C.Board
	40		Jumper wire
	41		Head lead
	42		Lead wire
	43		Lead wire
	44	AZN1468	Tube
	45		Mecha P.C.Board calking assembly
	46	AZN1319	R Reel assembly
	47	AZN1320	F Reel assembly
	48	AZN1321	Reverse arm calking assembly
	49		FR lever calking assembly
	50	AZN1795	PLAY lever calking assembly
	51	AZN1324	Gear arm R calking assembly
	52	AZN1325	Gear arm L calking assembly

Mark	No.	Parts No.	Description
	53	AZN1326	Head lever calking assembly
	54	AZN1327	FW assembly
	55		Head P.C.Board
	56		Plate(FLYWHEEL)
	57	AZN1328	Azimuth plate
	58		SW arm
	59	AZN1356	Eject arm L
	60	AZN1357	Eject arm R
	61	AZN1330	Head arm
	62	AZN1331	P Azimuth spring
	63	AZN1332	Cassette stopper
	64	AZN1333	Play trigger calking assembly
	65	AZN1334	Head frame
	66	AZN1335	Cassette guide L
	67	AZN1336	Cassette guide R
	68	AZN1337	Cassette guide
	69	AZN1338	Cam gear
	70	AZN1469	Head holder
	71	AZN1340	Head gear
	72	AZN1341	Eject arm
	73	AZN1342	Select lever
	74	AZN1343	Brake
	75	AZN1344	Eject lever L
	76	AZN1345	Ratch lever R
	77	AZN1346	Metal
	78	AZN1347	Metal
	79	AZN1348	Cushion
	80	AZN1349	Trigger arm
	81	AZN1350	Plunger
	82	AZS1035	Bobbin
	83	AZN1351	Solenoid plate calking assembly
	84	AZP1022	P Head
	85	AZB1099	Screw
	86	AZN1352	Spring
	87	AZN1304	Spacer
	88	AZN1470	Tube
	89	AZB1100	Screw
	90	AZS1036	Bobbin
	91	AZB1101	Screw
	92	AZB1102	Spring washer
	93	AZN1471	Head spring
	94	AZN1833	Capstan holder
	95	AZN1834	Capstan holder
	200	AZB1084	Nut
	201	AZB1085	E ring
	202	AZB1086	D Screw
	203	AZB1121	P Washer
	204	AZB1087	N Washer
	205	AZB1089	U Screw
	206	AZB1090	P Washer
	207	AZB1091	Oil cut
	208	AZB1092	Oil cut
	209	AZB1093	P Washer
	210	AZB1094	P Washer

Mark	No.	Parts No.	Description
	211	AZB1095	D Screw
	212		Holder
	213	AZB1097	P Washer
	214	AZB1098	M Washer
	215	AZB1105	P Screw
	216	AZB1106	D Screw
	217	AZB1107	P Washer
	218	AZB1164	P screw
	300	AZX1020	Motor assembly
	301	AZP1023	Head frame assembly
	302	AZB1104	Screw



Mark	No.	Parts No.	Description
	211	AZB1095	D Screw
	212		Holder
	213	AZB1097	P Washer
	214	AZB1098	M Washer
	215	AZB1105	P Screw
	216	AZB1106	D Screw
	217	AZB1107	P Washer
	218	AZB1164	P screw
	300	AZX1020	Motor assembly
	301	AZP1023	Head frame assembly
	302	AZB1104	Screw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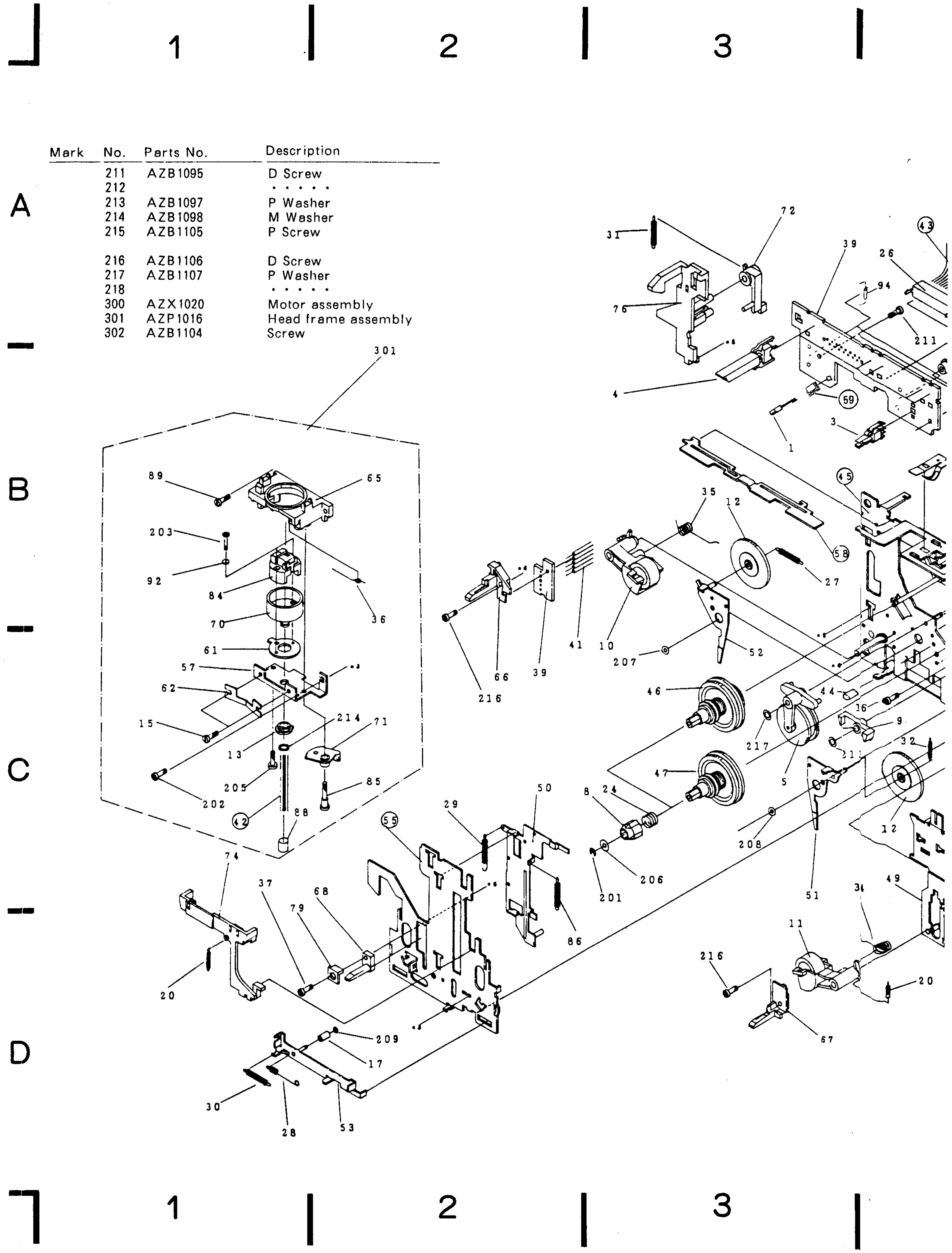
37
79
68
(55)
29
50
86
209
17
30
28
53

10.2.4 Mecha unit 2

Mark	No.	Parts No.	Description
	1	AZE1018	Hall IC
	2	AZX1019	Motor
	3	AZS1054	Leaf SW(MODE)
	4	AZS1034	Leaf SW (ARF,HALF,CrO2)
	5	AZN1286	Drive arm assembly
	6	AZN1287	FW assembly A
	7	AZN1288	Cam gear
	8	AZN1289	Reel
	9	AZN1290	FR arm
	10	AZN1797	P arm L assembly
	11	AZN1798	P arm R assembly
	12	AZN1293	Gear
	13	AZN1294	H Gear
	14	AZN1793	CUE arm
	15	AZB1079	Screw
	16	AZB1080	Screw
	17	AZB1296	Collar C
	18	AZN1297	Motor pully
	19	AZN1298	Belt
	20	AZN1299	Spring
	21	AZN1300	FR lever spring
	22	AZN1301	FWF spring
	23	AZN1302	FWR spring
	24	AZN1303	Spring
	25	AZB1088	Collar
	26	AZN1305	Cable holder
	27	AZN1306	Spring
	28	AZN1307	Spring
	29	AZN1308	Spring
	30	AZN1309	Spring
	31	AZN1310	Spring
	32	AZN1311	Spring
	33	AZN1312	Spring
	34	AZN1313	Spring
	35	AZN1314	Spring
	36	AZN1315	Spring
	37	AZB1081	Screw
	38	AZN1316	Nylon band
	39	AZN1836	P.C.Board
	40		Jumper wire
	41		Head lead
	42		Lead wire
	43		Lead wire
	44	AZN1468	Tube
	45		Mecha P.C.Board calking assembly
	46	AZN1319	R Reel assembly
	47	AZN1320	F Reel assembly
	48	AZN1321	Reverse arm calking assembly
	49		FR lever calking assembly
	50	AZN1795	PLAY lever calking assembly
	51	AZN1324	Gear arm R calking assembly
	52	AZN1325	Gear arm L calking assembly

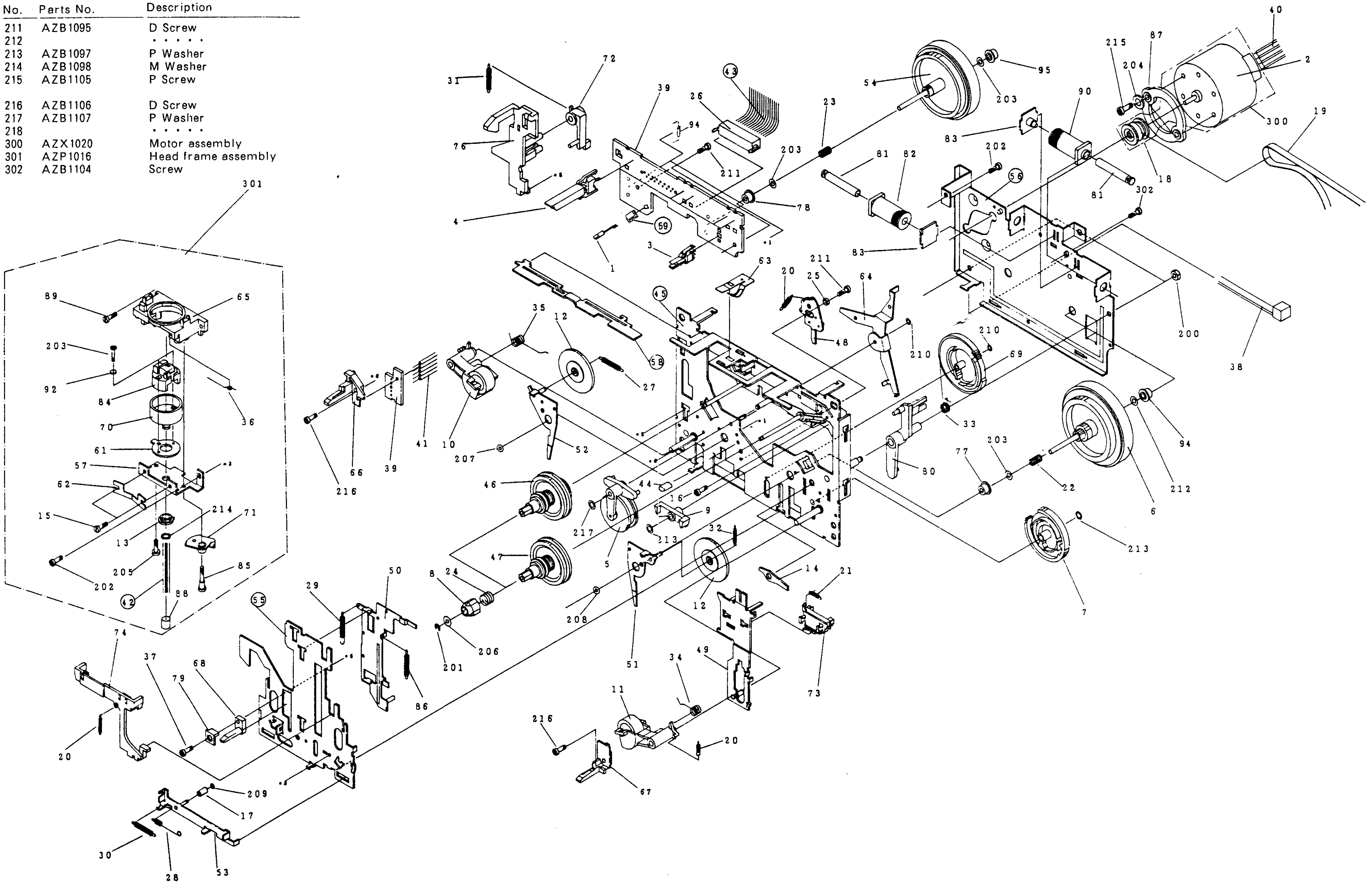
Mark	No.	Parts No.	Description
	53	AZN1326	Head lever calking assembly
	54	AZN1327	FW assembly
	55		Head P.C.Board
	56		Plate(FLYWHEEL)
	57	AZN1328	Azimuth plate
	58		SW arm
	59		Holder
	60		………
	61	AZN1330	Head arm
	62	AZN1331	Azimuth spring
	63	AZN1332	Cassette stopper
	64	AZN1333	Play trigger calking assembly
	65	AZN1334	Head frame
	66	AZN1335	Cassette guide L
	67	AZN1336	Cassette guide R
	68	AZN1337	Cassette guide
	69	AZN1338	Cam gear
	70	AZN1469	Head holder
	71	AZN1340	Head gear
	72	AZN1341	Eject arm
	73	AZN1342	Select lever
	74	AZN1343	Brake
	75		………
	76	AZN1353	Ratch lever R
	77	AZN1346	Metal
	78	AZN1347	Metal
	79	AZN1348	Cushion
	80	AZN1349	Trigger arm
	81	AZN1350	Plunger
	82	AZS1035	Bobbin
	83	AZN1351	Solenoid plate calking assembly
	84	AZP1014	R/P/E Head
	85	AZB1099	Screw
	86	AZN1352	Spring
	87	AZN1304	Spacer
	88	AZN1470	Tube
	89	AZB1100	Screw
	90	AZS1036	Bobbin
	91	AZB1101	Screw
	92	AZB1102	Spring washer
	93		• • • • •
	94	AZN1833	Capstan holder
	95	AZN1834	Capstan holder
	200	AZB1084	Nut
	201	AZB1085	E ring
	202	AZB1086	D Screw
	203	AZB1121	P Washer
	204	AZB1087	N Washer
	205	AZB1089	U Screw
	206	AZB1090	P Washer
	207	AZB1091	Oil cut
	208	AZB1092	Oil cut
	209	AZB1093	P Washer
	210	AZB1094	P Washer

Mark	No.	Parts No.	Description
	211	AZB1095	D Screw
	212		• • • • •
	213	AZB1097	P Washer
	214	AZB1098	M Washer
	215	AZB1105	P Screw
	216	AZB1106	D Screw
	217	AZB1107	P Washer
	218		• • • • •
	300	AZX1020	Motor assembly
	301	AZP1016	Head frame assembly
	302	AZB1104	Screw



ply
rd
EEL)
g
er
ply
L
R
ply

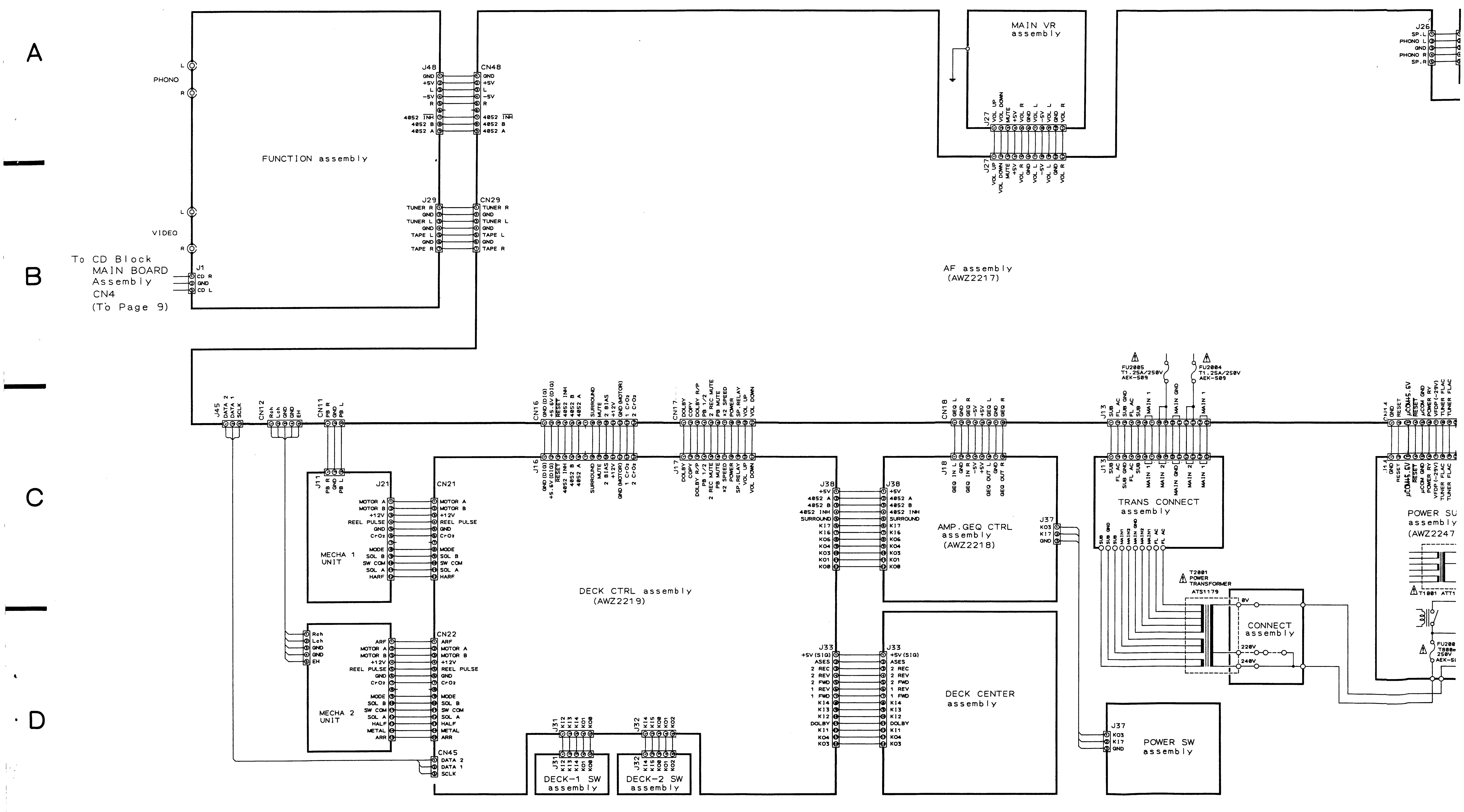
Mark	No.	Parts No.	Description
	211	AZB1095	D Screw
	212		• • • • •
	213	AZB1097	P Washer
	214	AZB1098	M Washer
	215	AZB1105	P Screw
	216	AZB1106	D Screw
	217	AZB1107	P Washer
	218		• • • • •
	300	AZX1020	Motor assembly
	301	AZP1016	Head frame assembly
	302	AZB1104	Screw

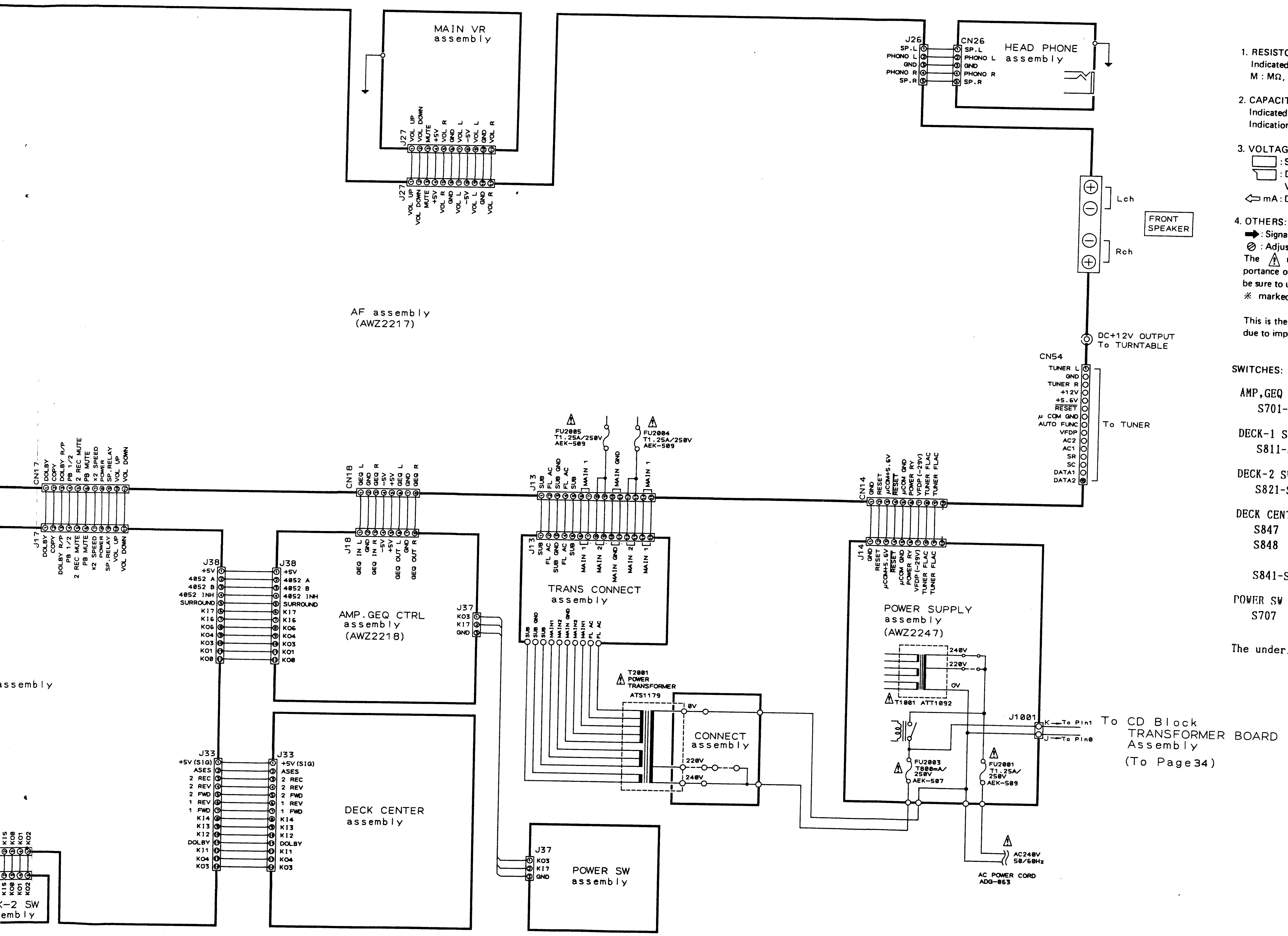


40
2
215
87
204
300
19
18
302
90
81
83
202
(56)
95
203
54
23
81
82
83
㊸
26
94
211
203
78
39
72
31
76
4
(59)
3
1
63
㊺
20
25
211
64
48
210
200
38
210
69
33
94
212
6
203
77
22
80
213
7
35
12
27
(58)
10
52
207
66
39
41
216
46
44
16
9
217
5
213
32
47
24
8
206
201
208
12
51
14
21
73
49
34
11
216
20
67
301
89
65
203
92
84
36
70
61
57
62
15
214
71
13
205
85
202
㊷
88
(55)
29
50
74
37
79
68
86
20
209
17
30
28
53

10.3 SCHEMATIC DIAGRAM AND P.C.BOARDS CONNECTION DIAGRAM

10.3.1 Over all schematic diagram


FUNCTION assembly
PHONO
L
R
VIDEO
J48
CN48
GND
+5V
L
-5V
R
4052 INH
4052 B
4052 A
J29
CN29
TUNER R
GND
TUNER L
TAPE L
TAPE R
To CD Block MAIN BOARD Assembly CN4 (To Page 9)
J1
CD R
GND
CD L
MAIN VR assembly
J27
VOL UP
VOL DOWN
MUTE
+5V
VOL R
-5V
VOL L
J26
SP.L
PHONO L
PHONO R
SP.R
AF assembly (AWZ2217)
J45
DATA 2
DATA 1
SCLK
CN12
Rch
Lch
EH
CN11
PB R
PB L
CN16
J16
GND (DIG)
+5.6V (DIG)
RESET
SURROUND
MUTE
2 BIAS
+12V
GND (MOTOR)
1 CrO2
2 CrO2
CN17
J17
DOLBY
COPY
DOLBY R/P
PB 1/2
2 REC MUTE
PB MUTE
X2 SPEED
POWER
SP.RELAY
CN18
J18
GEQ IN L
GEQ IN R
GEQ OUT L
GEQ OUT R
FU2005 T1.25A/250V AEK-509
FU2004 T1.25A/250V AEK-509
J13
SUB
FL AC
SUB GND
MAIN 1
MAIN 2
MAIN GND
CN14
J14
µCOM+5.6V
µCOM GND
POWER RY
VFDP(-29V)
TUNER FLAG
J11
J21
CN21
MOTOR A
MOTOR B
+12V
REEL PULSE
CrO2
MODE
SOL B
SW COM
SOL A
HARF
MECHA 1 UNIT
J38
4052 A
4052 B
4052 INH
K17
K16
K06
K04
K03
K01
K08
AMP.GEQ CTRL assembly (AWZ2218)
J37
TRANS CONNECT assembly
POWER SU assembly (AWZ2247
T2001 POWER TRANSFORMER ATS1179
T1001 ATT1
0V
220V
240V
CONNECT assembly
FU2001 T800mA 250V AEK-5
DECK CTRL assembly (AWZ2219)
CN22
ARF
HALF
METAL
ARR
MECHA 2 UNIT
J33
+5V (SIG)
ASES
2 REC
2 REV
2 FWD
1 REV
1 FWD
K14
K13
K12
K11
DECK CENTER assembly
POWER SW assembly
J31
J32
K15
K02
DECK-1 SW assembly
DECK-2 SW assembly
CN45


4
5
6
7
8
9
A
B
C
D
MAIN VR
assembly
J27
VOL UP
VOL DOWN
MUTE
+5V
VOL R
GND
VOL L
-5V
VOL L
GND
VOL R
J26
SP.L
PHONO L
GND
PHONO R
SP.R
CN26
HEAD PHONE
assembly
Lch
Rch
FRONT
SPEAKER
DC+12V OUTPUT
To TURNTABLE
CN54
TUNER L
GND
TUNER R
+12V
+5.6V
RESET
μ COM GND
AUTO FUNC
VFDP
AC2
AC1
SR
SC
DATA1
DATA2
To TUNER
AF assembly
(AWZ2217)
CN17
J17
DOLBY
COPY
DOLBY R/P
PB 1/2
2 REC MUTE
PB MUTE
x2 SPEED
POWER
SP.RELAY
VOL UP
VOL DOWN
CN18
J18
GEQ IN L
GND
GEQ IN R
-5V
+5V
GEQ OUT L
GND
GEQ OUT R
FU2005
T1.25A/250V
AEK-509
FU2004
T1.25A/250V
AEK-509
J13
SUB
FL AC
SUB GND
FL AC
SUB
MAIN 1
MAIN 2
MAIN GND
MAIN 2
MAIN 1
TRANS CONNECT
assembly
SUB
SUB GND
SUB
MAIN1
MAIN2
MAIN GND
MAIN2
MAIN1
FL AC
FL AC
CN14
J14
GND
RESET
μCOM+5.6V
RESET
μCOM GND
POWER RY
VFDP (-29V)
TUNER FLAC
TUNER FLAC
J38
+5V
4052 A
4052 B
4052 INH
SURROUND
K17
K16
K06
K04
K03
K01
K08
AMP.GEQ CTRL
assembly
(AWZ2218)
J37
KO3
KI7
GND
ssembly
T2001
POWER
TRANSFORMER
ATS1179
0V
220V
240V
CONNECT
assembly
POWER SUPPLY
assembly
(AWZ2247)
240V
220V
0V
T1001 ATT1092
J1001
K To Pin1
J To Pin0
FU2003
T800mA/
250V
AEK-507
FU2001
T1.25A/
250V
AEK-509
AC240V
50/60Hz
AC POWER CORD
ADG-063
J33
+5V (SIG)
ASES
2 REC
2 REV
2 FWD
1 REV
1 FWD
K14
K13
K12
DOLBY
K11
K04
K03
DECK CENTER
assembly
K15
K08
K01
K02
K-2 SW
embly
J37
KO3
KI7
GND
POWER SW
assembly

To CD Block
TRANSFORMER BOARD
Assembly
(To Page34)

1. RESISTORS:
Indicated in Ω, ¼W, ⅛W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ±10% (M); ±20% tolerance

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
☐ : Signal voltage at (33 W + 33 W 8Ω)output (1kHz)
☐ : DC voltage (V) at no input signal
Value in ( ) is DC voltage at rated power.
⇦ mA : DC current at no input signal

4. OTHERS:
➡ : Signal route.
⊘ : Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

SWITCHES:

AMP,GEQ CTRL assembly (AWZ2218)
S701-S705 TACT SW

DECK-1 SW assembly
S811-S815 TACT SW

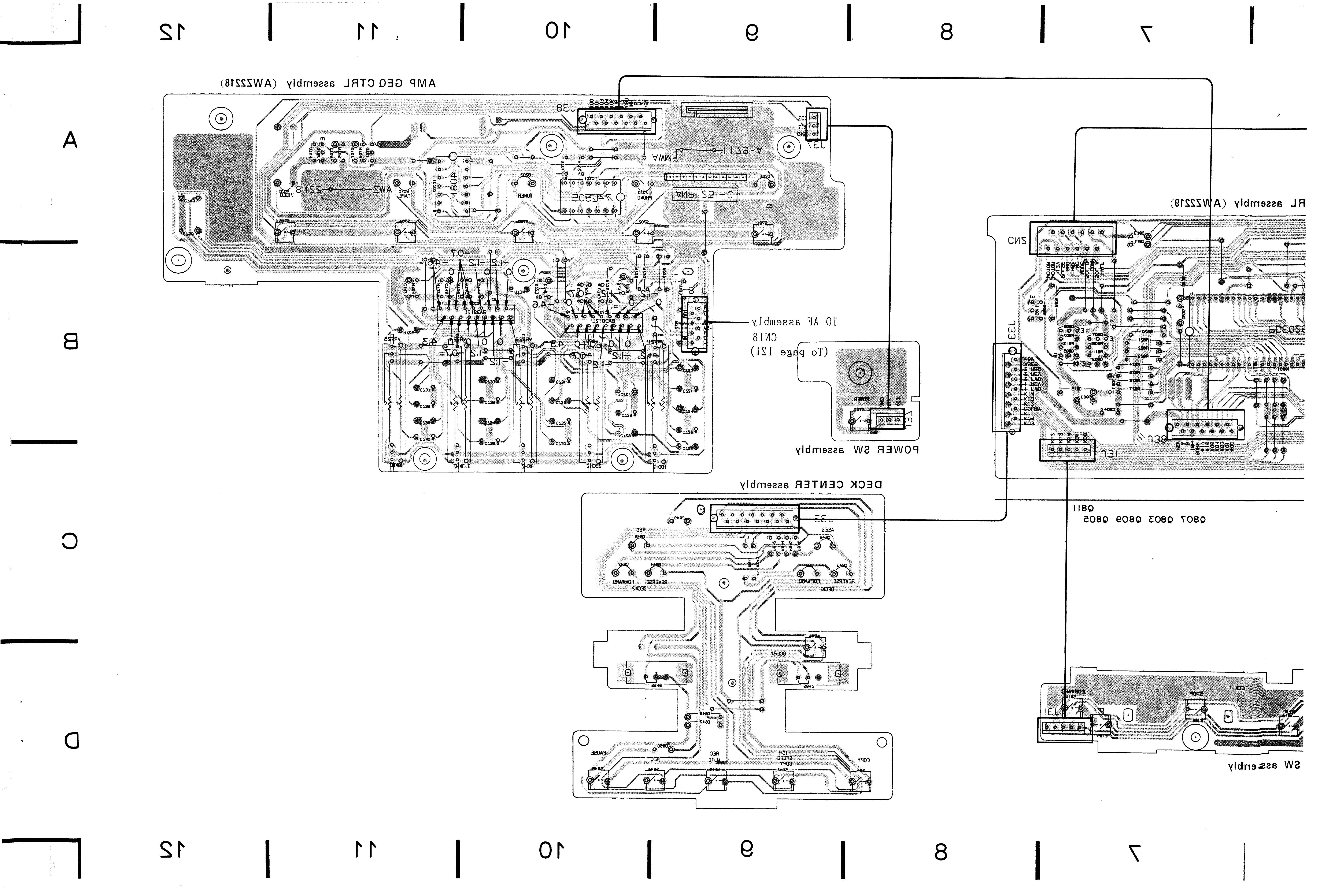
DECK-2 SW assembly
S821-S825 TACT SW

DECK CENTER assembly
S847 DOLBY OFF-ON
S848 REVERSE MODE

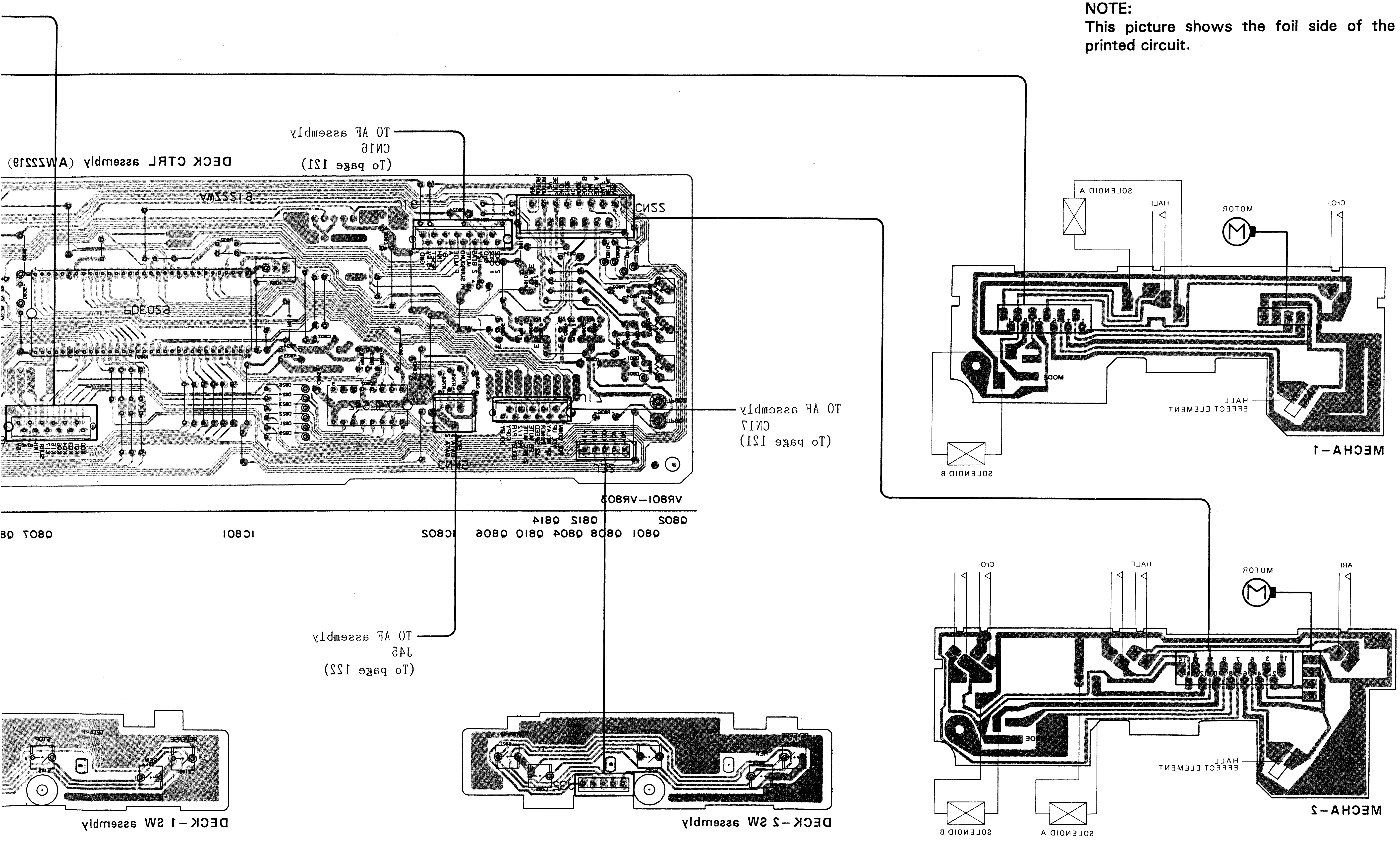
S841-S846 TACT SW

POWER SW assembly
S707 POWER

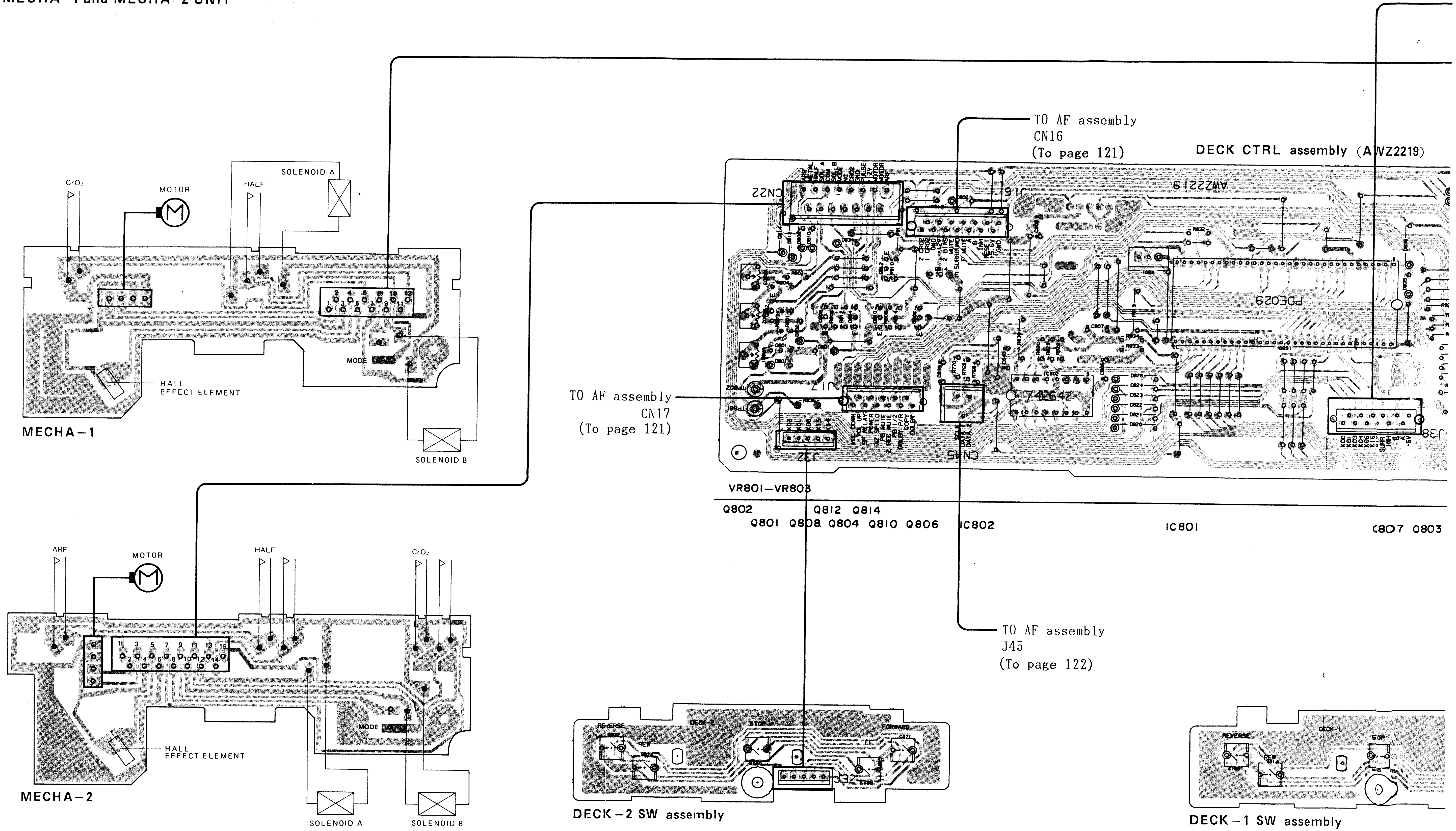
The underline indicates the switch position


12
11
10
9
8
7
A
B
C
D
AMP GEQ CTRL assembly (AWZ2218)
J38
J37
AWZ2218
ANP1521-C
TO AF assembly
CN18
(To page 121)
POWER SW assembly
RL assembly (AWZ2219)
CN2
J33
J38
J31
Q811
Q807 Q803 Q809 Q805
DECK CENTER assembly
J33
DECK1
DECK2
FORWARD
REVERSE
REC
DOLBY
PAUSE
REC MUTE
HIGH SPEED COPY
COPY
J31
FORWARD
STOP
SW assembly

NOTE:
This picture shows the foil side of the printed circuit.


DECK CTRL assembly (AWZ2219)
TO AF assembly CN16 (To page 121)
TO AF assembly CN17 (To page 121)
TO AF assembly J45 (To page 122)
CN22
CN16
CN13
CN17
J45
AWZ2219
PDE020
VR801—VR803
Q802
Q812 Q814
Q801 Q808 Q804 Q810 Q806 Q809
IC802
IC801
Q807
SOLENOID A
SOLENOID B
HALF
MOTOR
CrO2
ARF
MODE
HALL EFFECT ELEMENT
MECHA-1
MECHA-2
DECK-1 SW assembly
DECK-2 SW assembly
STOP
REVERSE
FORWARD
NEW

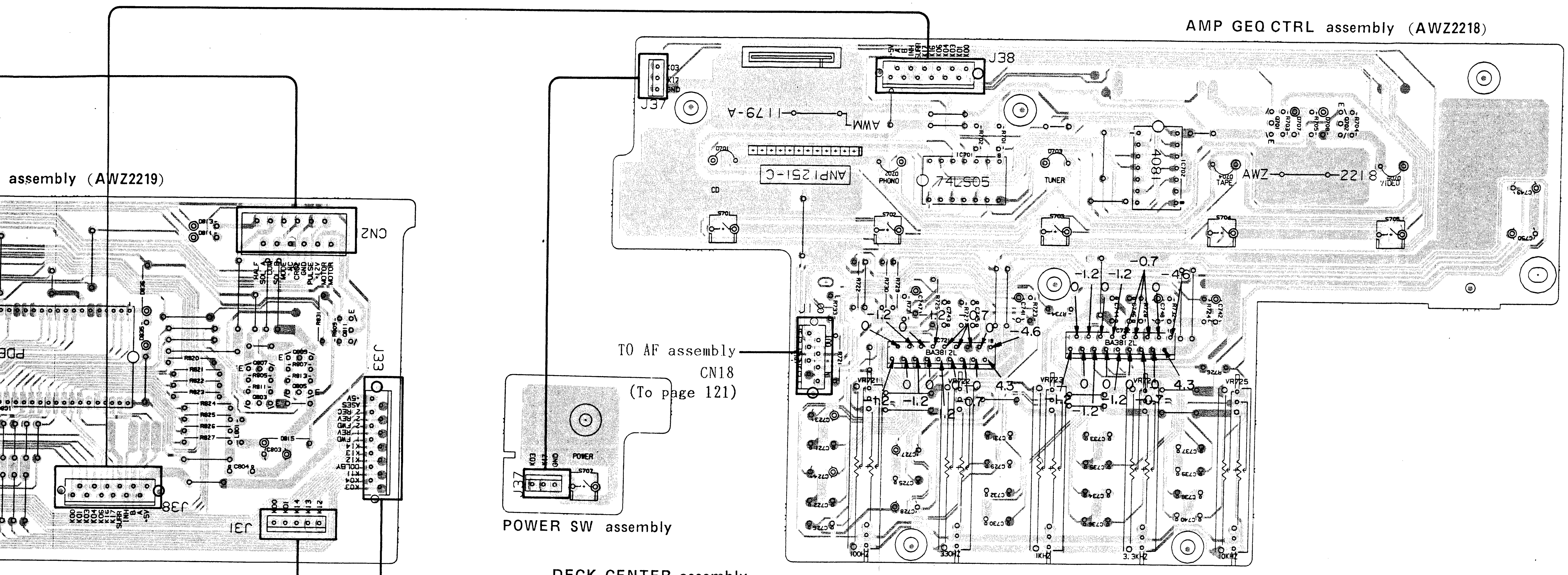
10.3.2 AMP, GEQ CTRL(AWZ2218), DECK−1SW, DECK−2SW, DECK CTRL(AWZ2219), DECK CENTER assembly, MECHA−1 and MECHA−2 UNIT


A
B
C
D
CrO₂
MOTOR
HALF
SOLENOID A
MODE
HALL EFFECT ELEMENT
MECHA−1
SOLENOID B
ARF
MOTOR
HALF
CrO₂
MODE
HALL EFFECT ELEMENT
MECHA−2
SOLENOID A
SOLENOID B
DECK CTRL assembly (AWZ2219)
AWZ2219
PDE029
CN22
J16
J17
J32
CN45
J38
74LS42
VR801−VR803
Q802
Q801
Q808
Q812
Q804
Q814
Q810
Q806
IC802
IC801
Q807
Q803
REVERSE
REW
STOP
FF
FORWARD
DECK-2
J32
DECK−2 SW assembly
REVERSE
REW
DECK-1
STOP
DECK−1 SW assembly

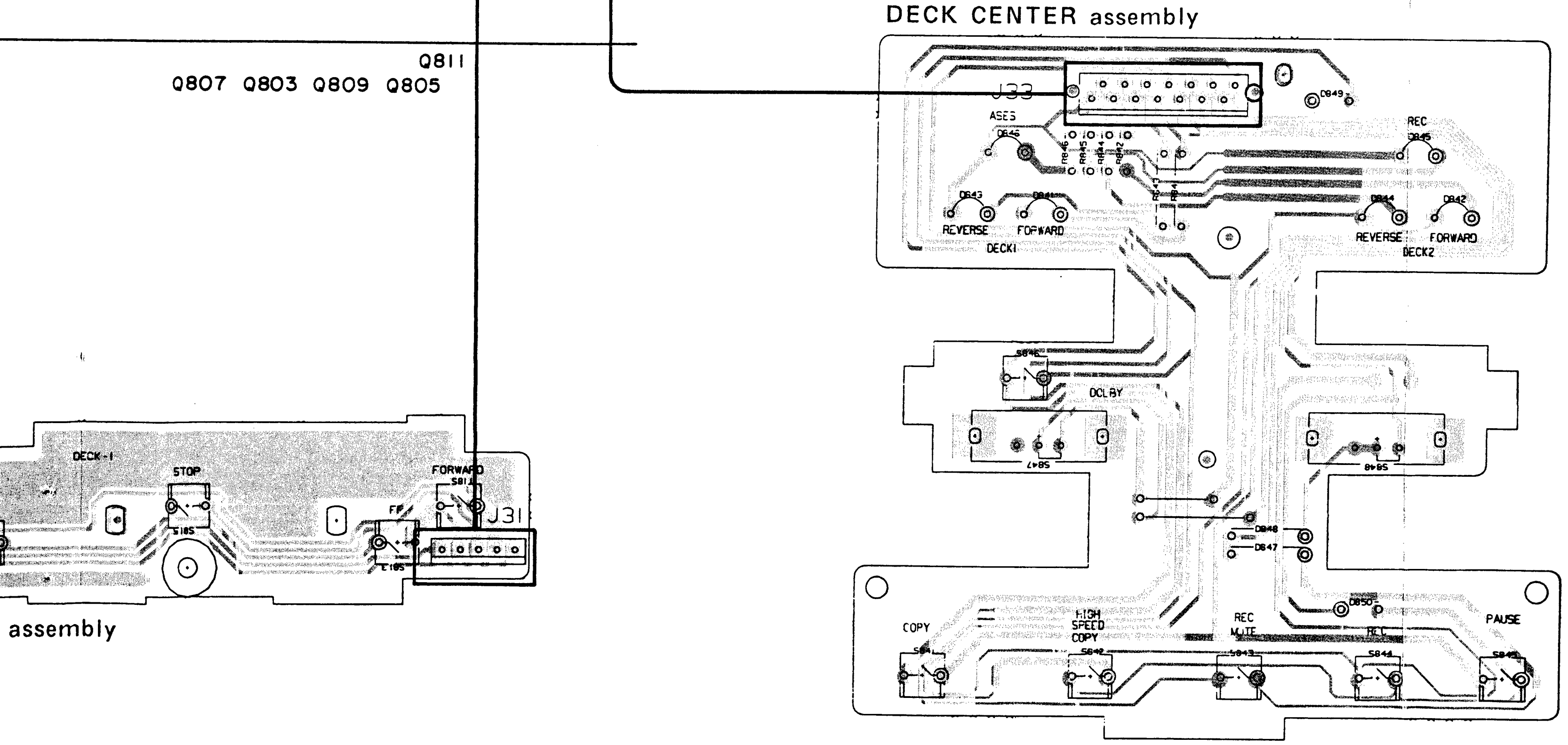
TO AF assembly
CN16
(To page 121)

TO AF assembly
CN17
(To page 121)

TO AF assembly
J45
(To page 122)

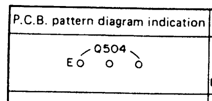
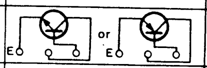
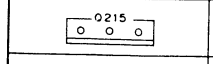
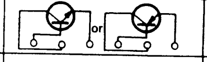
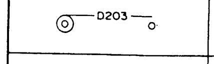
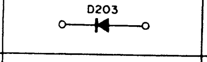
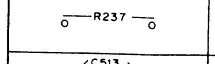
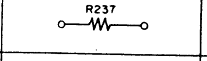
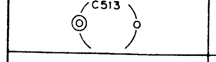
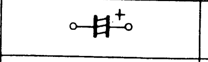
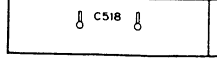
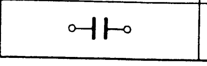

7
8
9
10
11
12
A
B
C
AMP GEQ CTRL assembly (AWZ2218)
J38
J37
AWM-1179-A
ANP1251-C
AWZ-2218
74LS05
4081
BA3812L
CD
PHONO
TUNER
TAPE
VIDEO
100Hz
330Hz
1kHz
3.3kHz
10kHz
J11
assembly (AWZ2219)
CN2
J33
J38
J31
POWER SW assembly
POWER
S707

TO AF assembly CN18 (To page 121)


DECK CENTER assembly
Q811
Q807 Q803 Q809 Q805
J33
REC
REVERSE
FORWARD
DECK1
DECK2
DOLBY
COPY
HIGH SPEED COPY
REC MUTE
RCL
PAUSE
DECK-1
STOP
FORWARD
FF
J31
assembly
D
7
8
9
10
11
12

NOTE

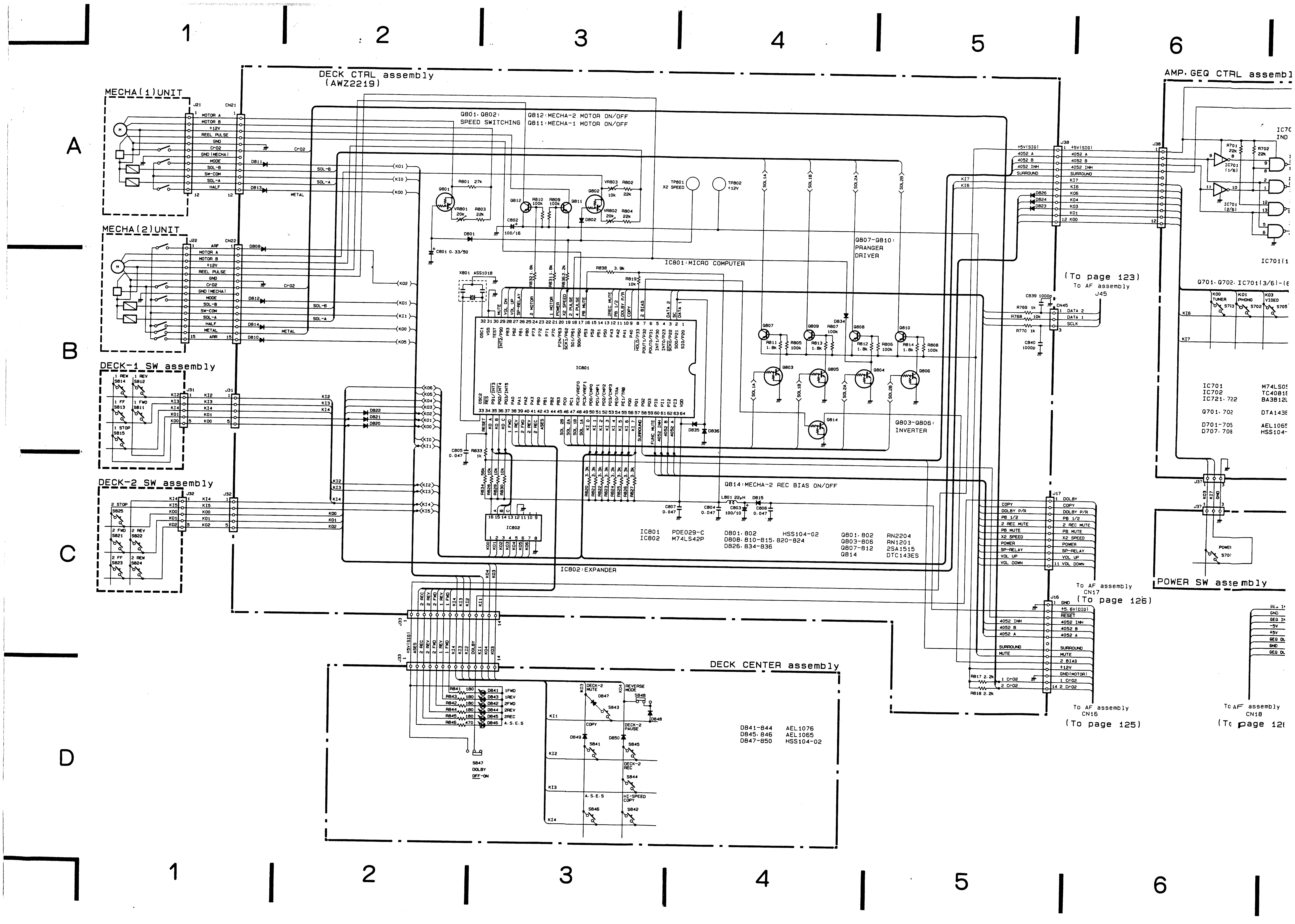
1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

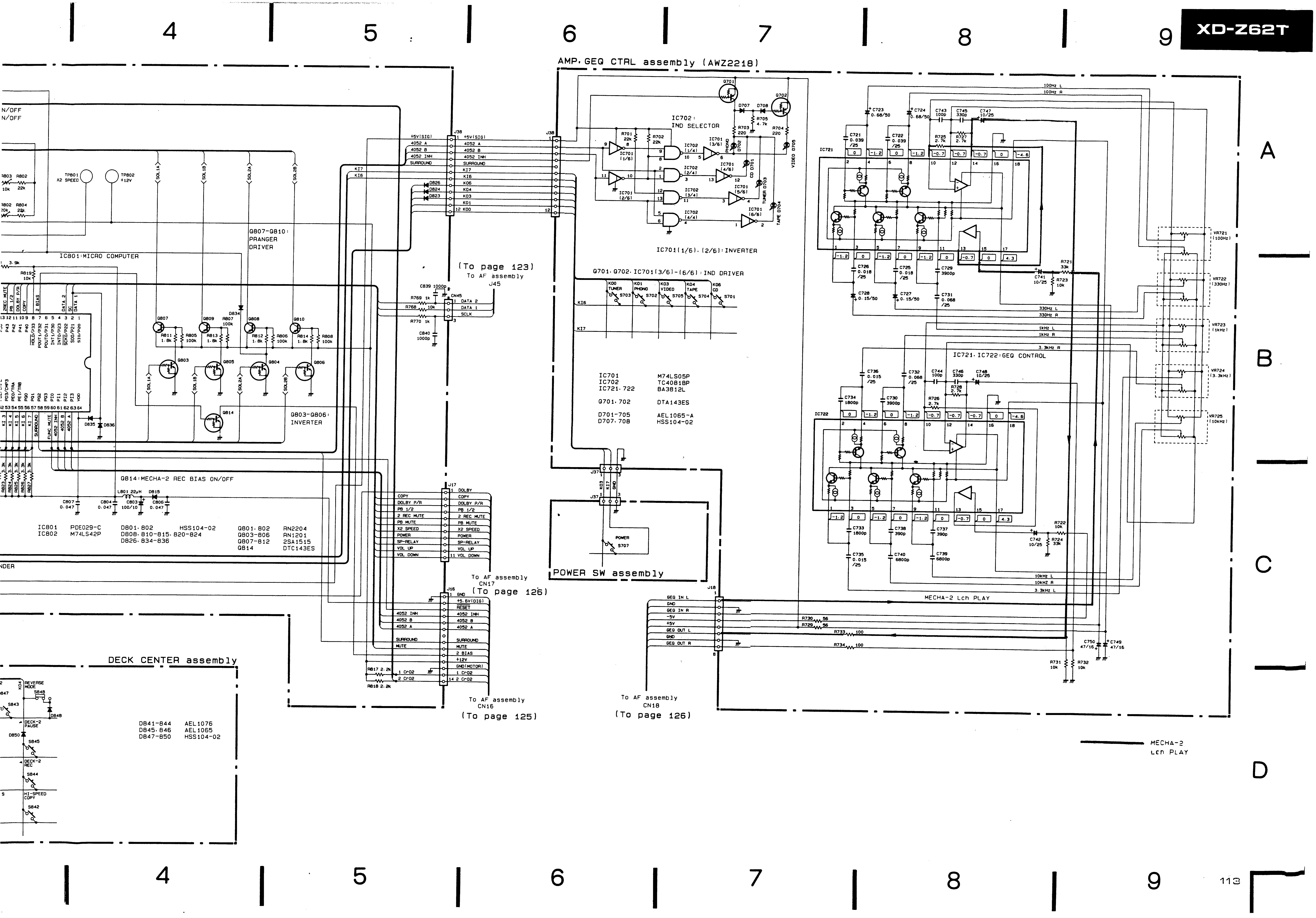
P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
		Transistor
		Radiator type transistor
		Diode
		Resistor
		Capacitor (Polarity)
		Capacitor (Non-polarity)

Others

P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

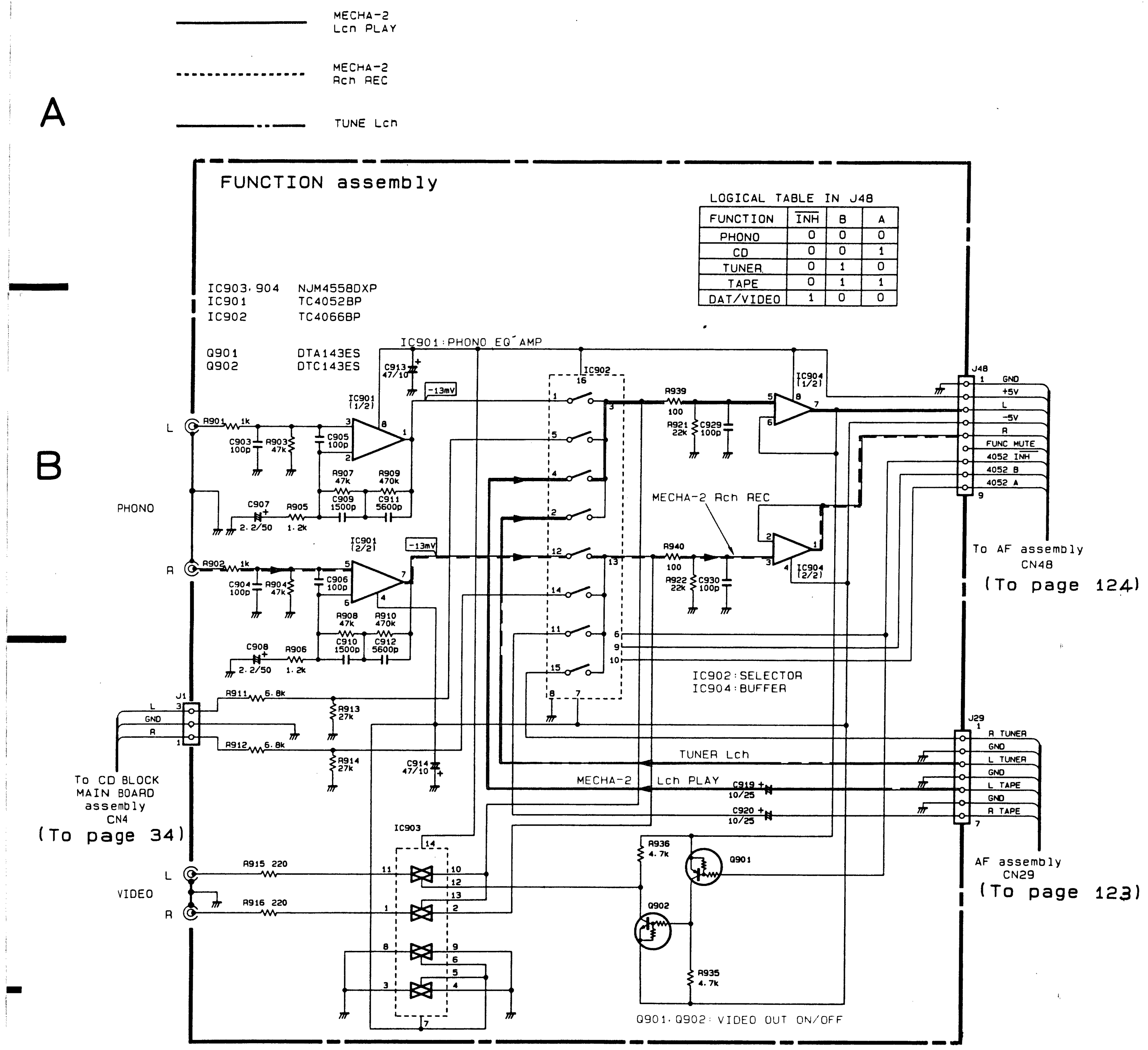
3. The capactor terminal marked with ◎(double circles) shows negatine termianl.
4. The diode terminal marked with ◎(double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.


DECK CTRL assembly
(AWZ2219)
MECHA(1)UNIT
MECHA(2)UNIT
DECK-1 SW assembly
DECK-2 SW assembly
DECK CENTER assembly
AMP, GEQ CTRL assembl
POWER SW assembly
Q801, Q802: SPEED SWITCHING
Q812: MECHA-2 MOTOR ON/OFF
Q811: MECHA-1 MOTOR ON/OFF
IC801: MICRO COMPUTER
IC802: EXPANDER
Q807–Q810: PRANGER DRIVER
Q803–Q806: INVERTER
Q814: MECHA-2 REC BIAS ON/OFF
TP801 X2 SPEED
TP802 +12V
IC801 PDE029-C
IC802 M74LS42P
D801, 802 HSS104-02
D808, 810–815, 820–824
D826, 834–836
Q801, 802 RN2204
Q803–806 RN1201
Q807–812 2SA1515
Q814 DTC143ES
D841–844 AEL1076
D845, 846 AEL1065
D847–850 HSS104-02
IC701 M74LS0
IC702 TC4081
IC721, 722 BA3812L
Q701, 702 DTA143E
D701–705 AEL1065
D707, 708 HSS104-
(To page 123)
To AF assembly J45
To AF assembly CN17
(To page 126)
To AF assembly CN16
(To page 125)
To AF assembly CN18
(To page 12
S847 DOLBY OFF-ON
1, 2, 3, 4, 5, 6
A, B, C, D


4
5
6
7
8
9
A
B
C
D
AMP, GEQ CTRL assembly (AWZ2218)
IC702: IND SELECTOR
IC701(1/6), (2/6): INVERTER
Q701, Q702, IC701(3/6)-(6/6): IND DRIVER
IC701 M74LS05P
IC702 TC4081BP
IC721, 722 BA3812L
Q701, 702 DTA143ES
D701-705 AEL1065-A
D707, 708 HSS104-02
IC721, IC722: GEQ CONTROL
IC801: MICRO COMPUTER
Q807-Q810: PRANGER DRIVER
Q803-Q806: INVERTER
Q814: MECHA-2 REC BIAS ON/OFF
IC801 PDE029-C
IC802 M74LS42P
D801, 802 HSS104-02
D808, 810-815, 820-824
D826, 834-836
Q801, 802 RN2204
Q803-806 RN1201
Q807-812 2SA1515
Q814 DTC143ES
TP801 X2 SPEED
TP802 +12V
(To page 123)
To AF assembly J45
To AF assembly CN17
(To page 126)
To AF assembly CN16
(To page 125)
To AF assembly CN18
(To page 126)
POWER SW assembly
POWER S707
DECK CENTER assembly
D841-844 AEL1076
D845, 846 AEL1065
D847-850 HSS104-02
REVERSE MODE
DECK-2 PAUSE
DECK-2 REC
HI-SPEED COPY
MECHA-2 Lch PLAY
VR721 (100Hz)
VR722 (330Hz)
VR723 (1kHz)
VR724 (3.3kHz)
VR725 (10kHz)
GEQ IN L
GEQ IN R
GEQ OUT L
GEQ OUT R
TUNER S703
PHONO S702
VIDEO S705
TAPE S704
CD S701
J38
J17
J16
J18
J37
CN45

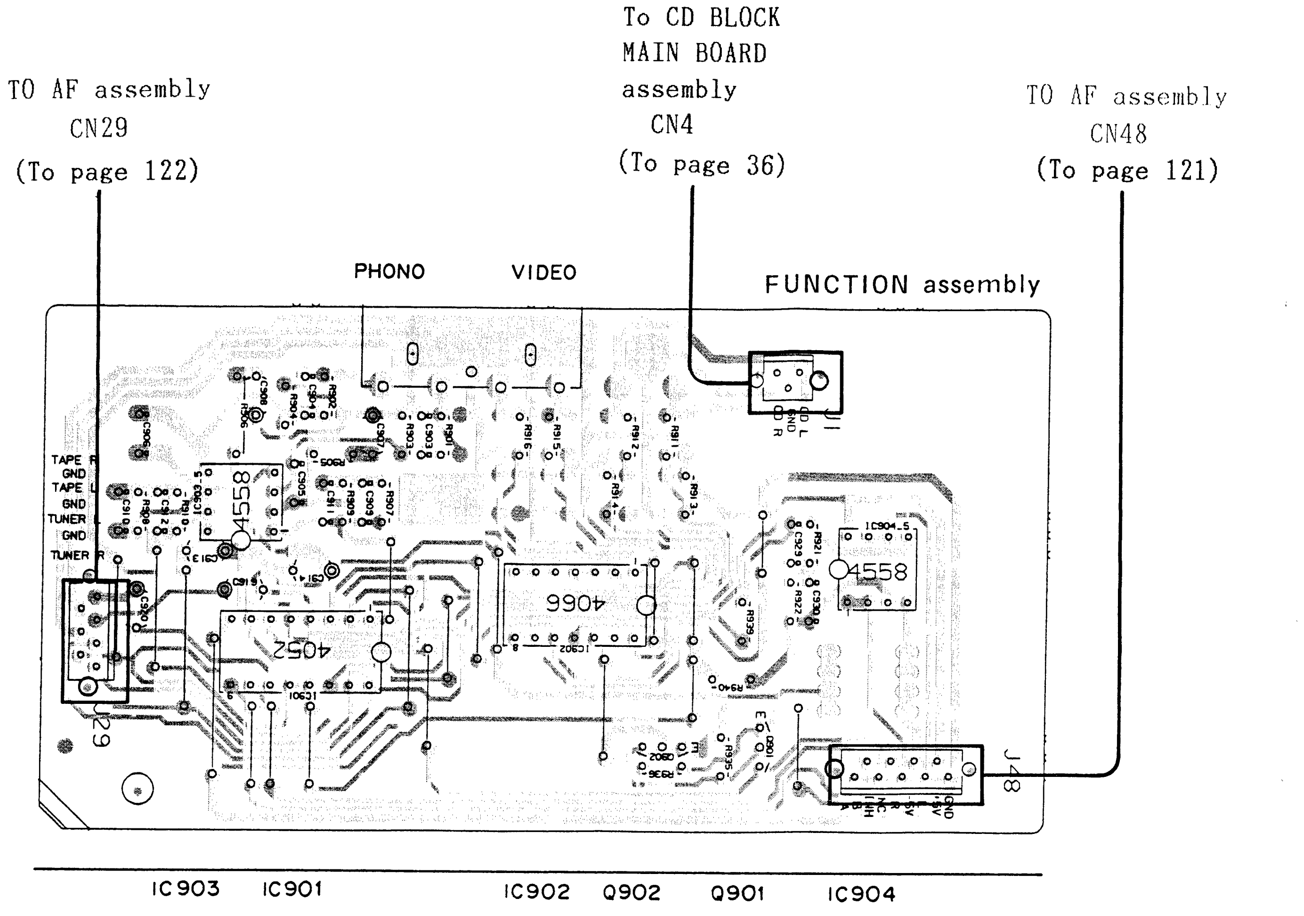
MECHA-2
Lch PLAY

10.3.3 FUNCTION assembly


MECHA-2 Lcn PLAY
MECHA-2 Rcn REC
TUNE Lcn
A
B
FUNCTION assembly
IC903, 904 NJM4558DXP
IC901 TC4052BP
IC902 TC4066BP
Q901 DTA143ES
Q902 DTC143ES
IC901:PHONO EQ AMP
IC901 (1/2)
IC901 (2/2)
IC902
IC904 (1/2)
IC904 (2/2)
-13mV
PHONO
L
R
R901 1k
R902 1k
C903 100p
C904 100p
R903 47k
R904 47k
C905 100p
C906 100p
R907 47k
R908 47k
R909 470k
R910 470k
C909 1500p
C910 1500p
C911 5600p
C912 5600p
C907 2.2/50
C908 2.2/50
R905 1.2k
R906 1.2k
C913 47/10
R939 100
R940 100
R921 22k
R922 22k
C929 100p
C930 100p
MECHA-2 Rch REC
IC902:SELECTOR
IC904:BUFFER
J48
GND
+5V
L
-5V
R
FUNC MUTE
4052 INH
4052 B
4052 A
To AF assembly CN48
(To page 124)
J1
GND
R911 6.8k
R912 6.8k
R913 27k
R914 27k
C914 47/10
To CD BLOCK MAIN BOARD assembly CN4
(To page 34)
J29
R TUNER
L TUNER
L TAPE
R TAPE
TUNER Lch
MECHA-2
Lch PLAY
C919 10/25
C920 10/25
AF assembly CN29
(To page 123)
IC903
VIDEO
R915 220
R916 220
R936 4.7k
R935 4.7k
Q901
Q902
Q901, Q902: VIDEO OUT ON/OFF

LOGICAL TABLE IN J48

FUNCTION	$\overline{\text{INH}}$	B	A
PHONO	0	0	0
CD	0	0	1
TUNER	0	1	0
TAPE	0	1	1
DAT/VIDEO	1	0	0


TO AF assembly CN29
(To page 122)
To CD BLOCK MAIN BOARD assembly CN4
(To page 36)
TO AF assembly CN48
(To page 121)
PHONO
VIDEO
FUNCTION assembly
TAPE R
GND
TAPE L
GND
TUNER L
GND
TUNER R
J29
J1
J48
4558
4052
4066
IC903
IC901
IC902
Q902
Q901
IC904

NOTE

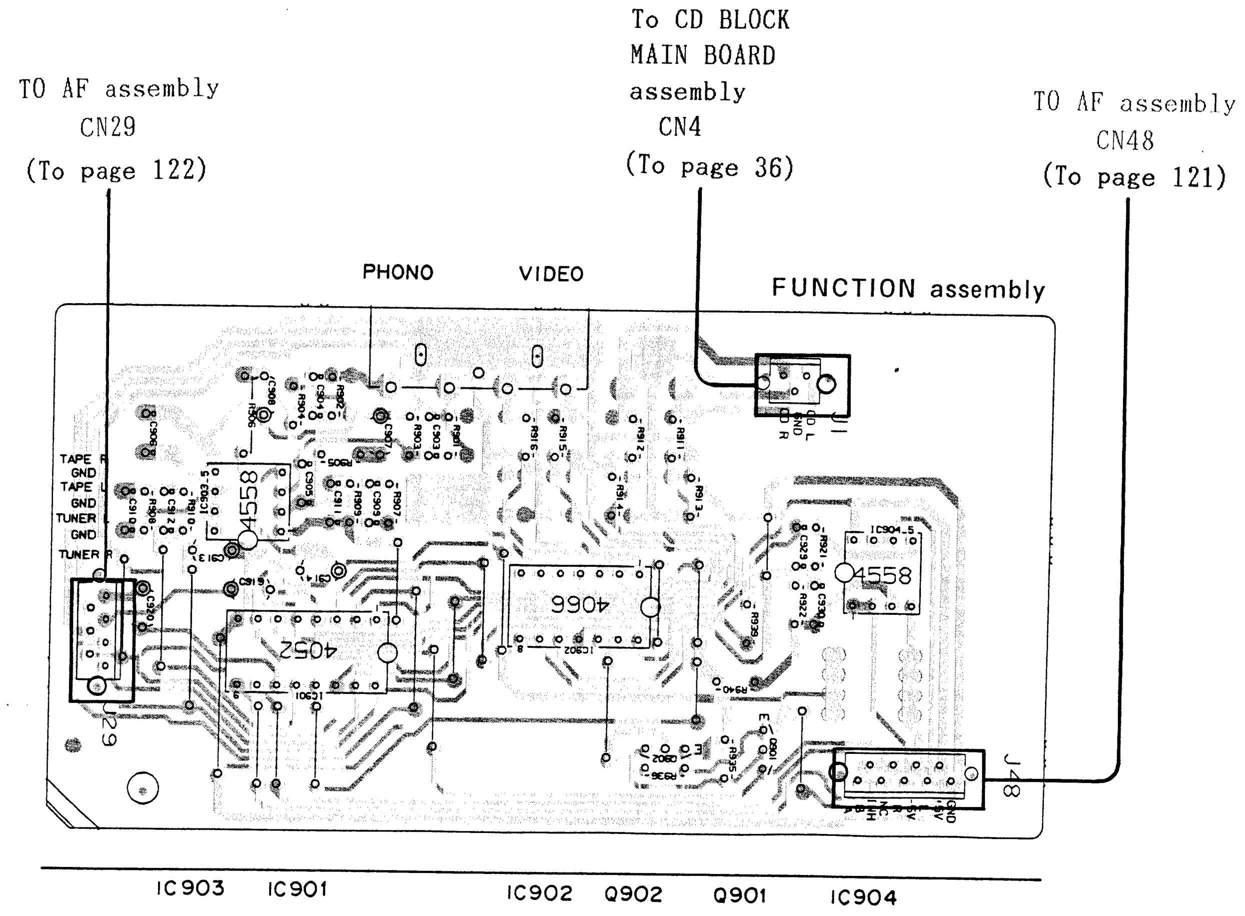
1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

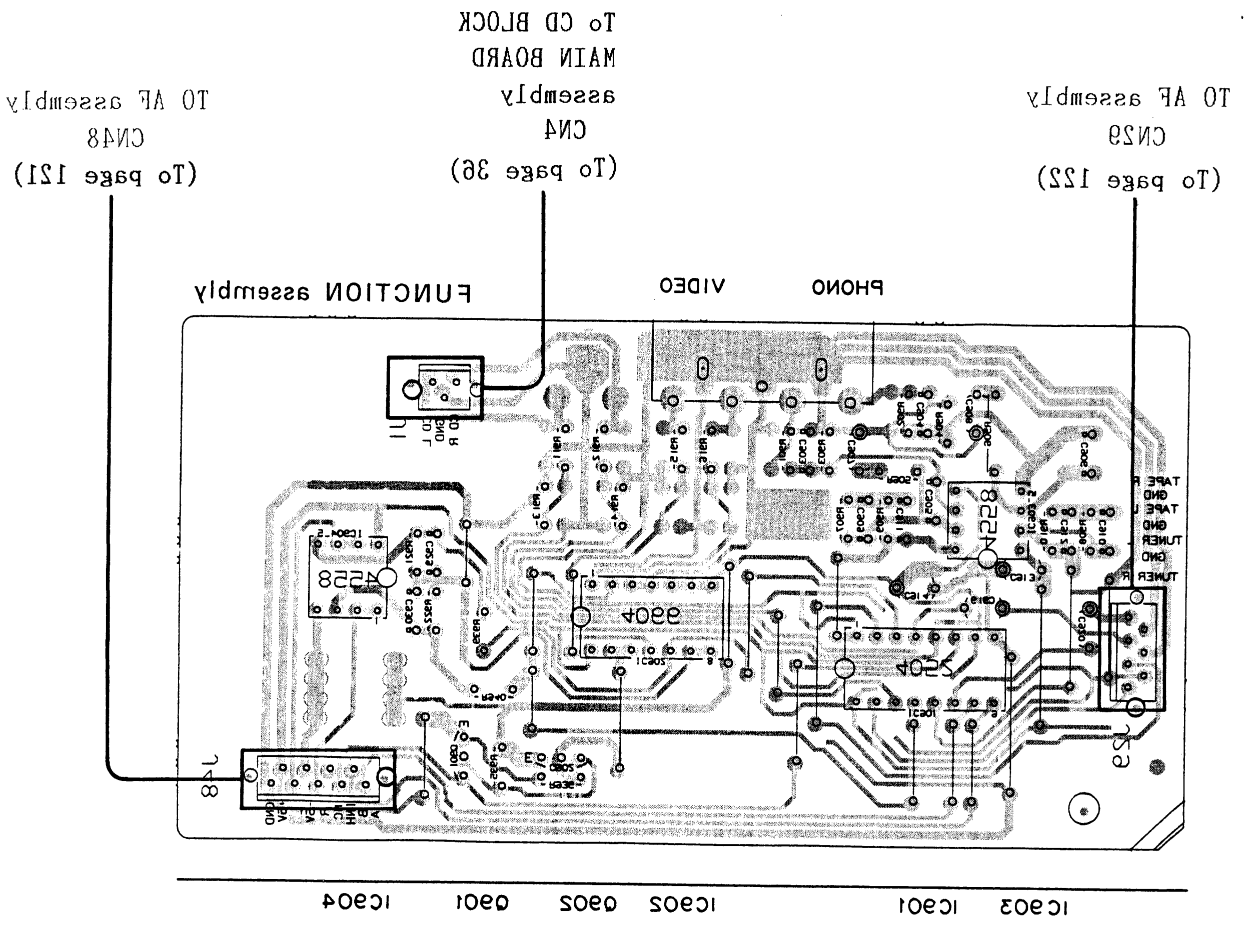
P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
Q504 E	E or E	Transistor
Q215	or	Radiator type transistor
D203	D203	Diode
R237	R237	Resistor
C513	+	Capacitor (Polarity)
C518		Capacitor (Non-polarity)

Others

P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

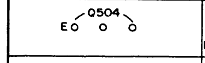
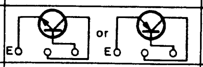
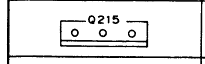
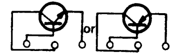
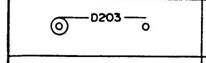
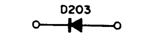
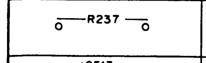
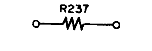
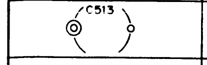
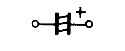
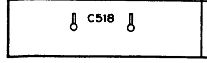
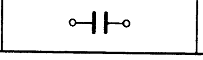
3. The capactor terminal marked with ◎ (double circles) shows negatine termianl.
4. The diode terminal marked with ◎ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.


TO AF assembly
CN29
(To page 122)
To CD BLOCK
MAIN BOARD
assembly
CN4
(To page 36)
TO AF assembly
CN48
(To page 121)
PHONO
VIDEO
FUNCTION assembly
TAPE R
GND
TAPE L
GND
TUNER L
GND
TUNER R
J29
J1
J48
4558
4066
4052
4558
IC903
IC901
IC902
Q902
Q901
IC904


TO AF assembly
CN48
(To page 121)
To CD BLOCK
MAIN BOARD
assembly
CN4
(To page 36)
TO AF assembly
CN29
(To page 122)
FUNCTION assembly
VIDEO
PHONO
IC904
IC901
Q901
Q902
IC902
IC901
IC903

NOTE

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

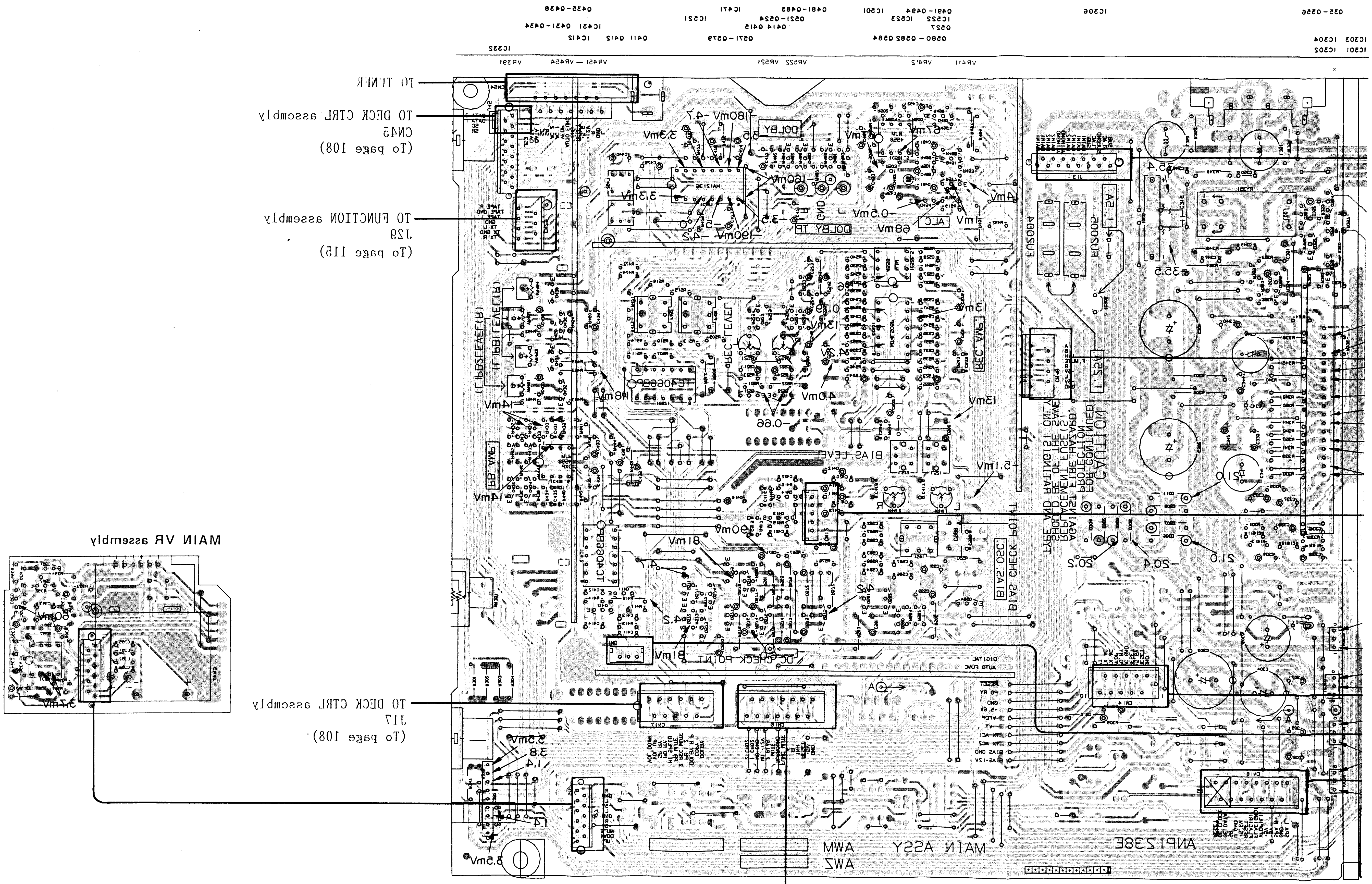
P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
		Transistor
		Radiator type transistor
		Diode
		Resistor
		Capacitor (Polarity)
		Capacitor (Non-polarity)

Others

P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capactor terminal marked with ◎(double circles) shows negatine termianl.
4. The diode terminal marked with ◎(double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

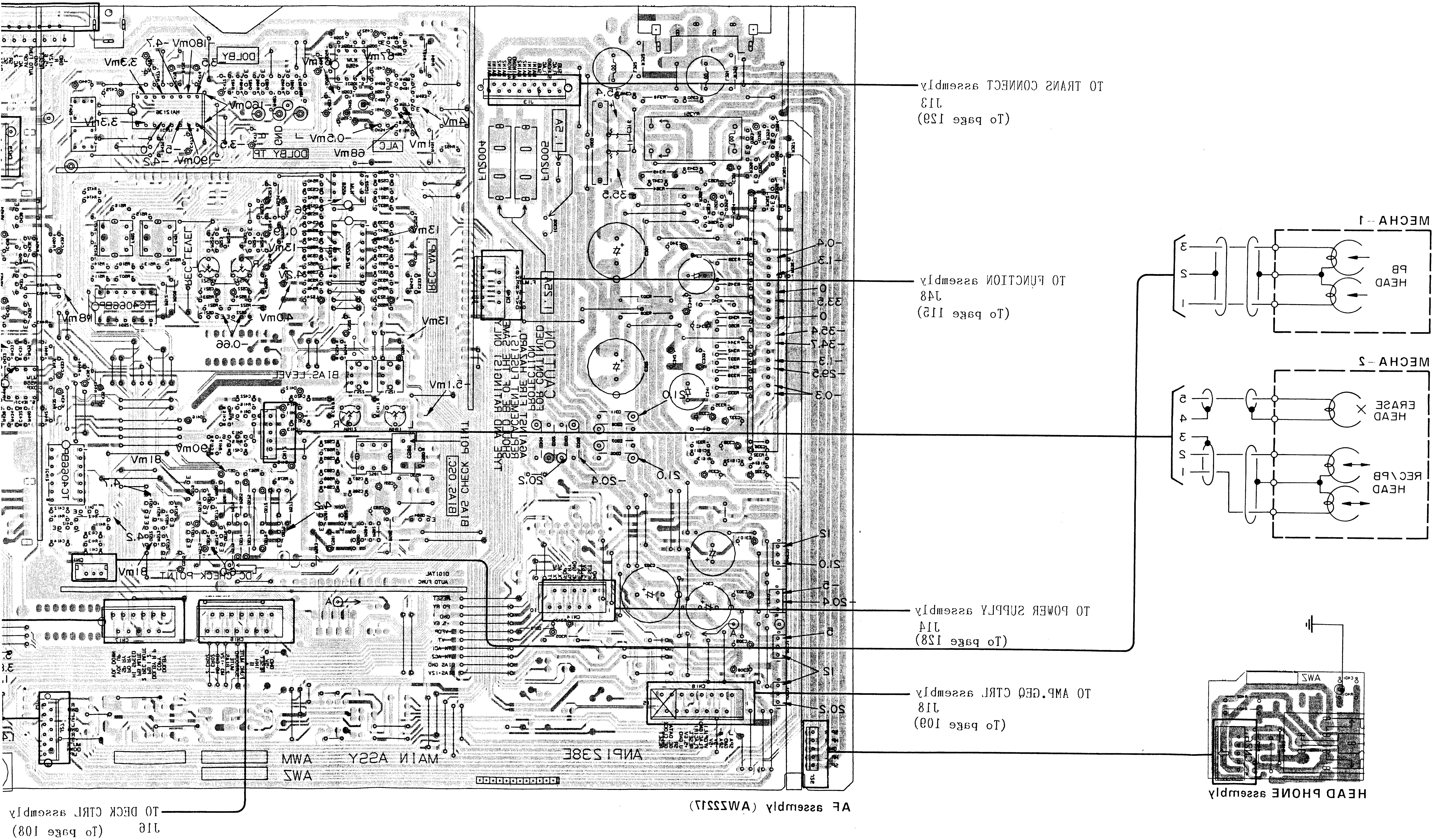
NOTE:
This picture shows the foil side of the printed circuit.


9
8
7
6
5
4
A
B
C
D
IC303 IC304
IC301 IC302
035-0356
IC306
Q491-Q494 IC501
IC522 IC523
Q527
Q580-Q582 Q584
Q481-Q483 IC471
Q521-Q524 IC521
Q414 Q415
Q571-Q579
Q411 Q412 IC412
IC431 Q431-Q434
Q435-Q438
IC332
VR411 VR412
VR522 VR521
VR451-VR454 VR391
TO TUNER
TO DECK CTRL assembly
CN45
(To page 108)
TO FUNCTION assembly
J29
(To page 115)
MAIN VR assembly
TO DECK CTRL assembly
J17
(To page 108)
TO DECK CTRL assembly
J16
(To page 108)
DOLBY
DOLBY TP
ALC
REC LEVEL
REC AMP
BIAS LEVEL
BIAS OSC
BIAS CHECK POINT
DC CHECK POINT
PB AMP
PB LEVEL(L)
PB LEVEL(R)
CAUTION
FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE AND RATINGS
FU5001
FU5002
T 5A
T 1.25A
MAIN ASSY
AWM
AWZ
ANP1238E

embly (AWZ2217)

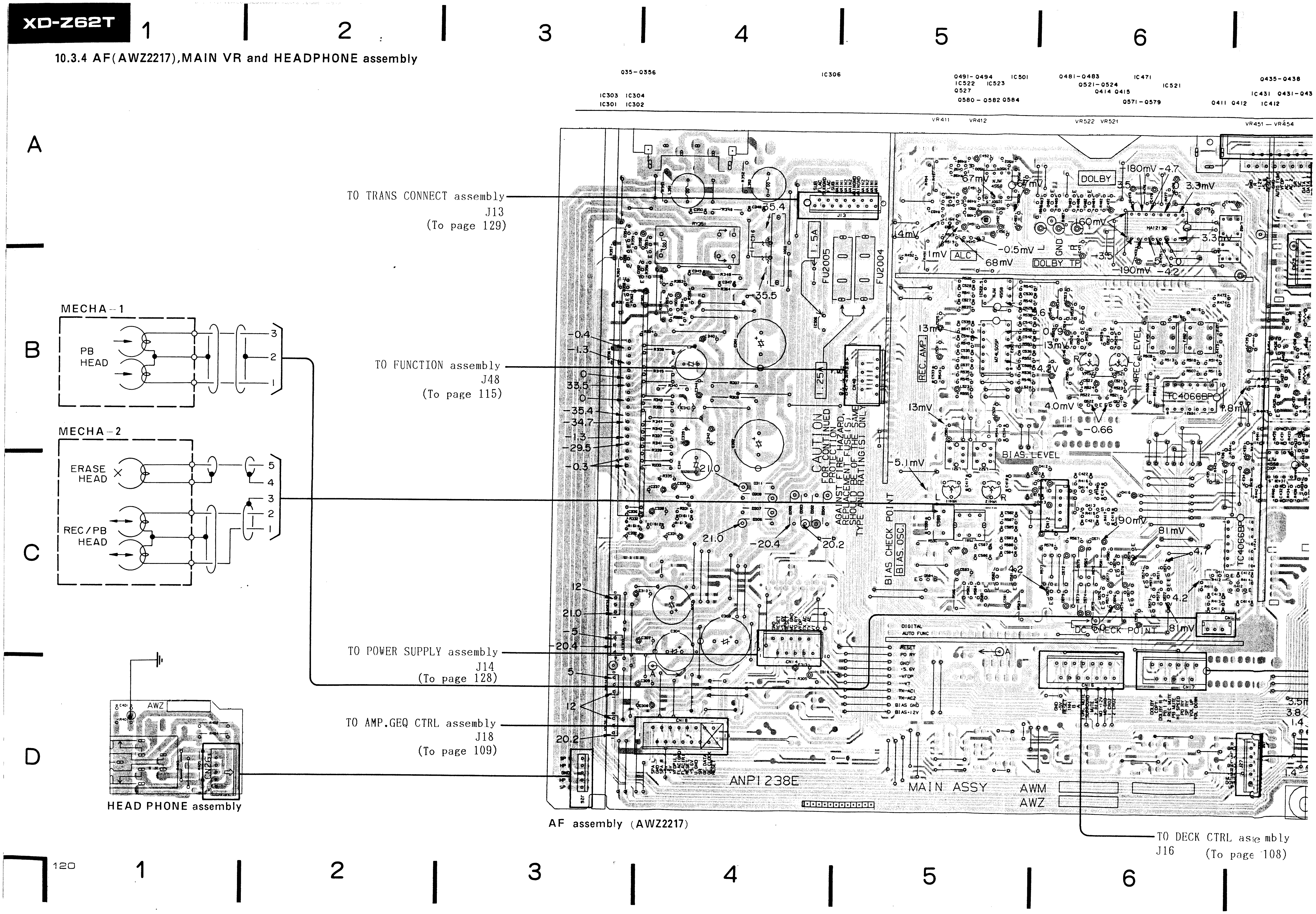
XD-Z62T

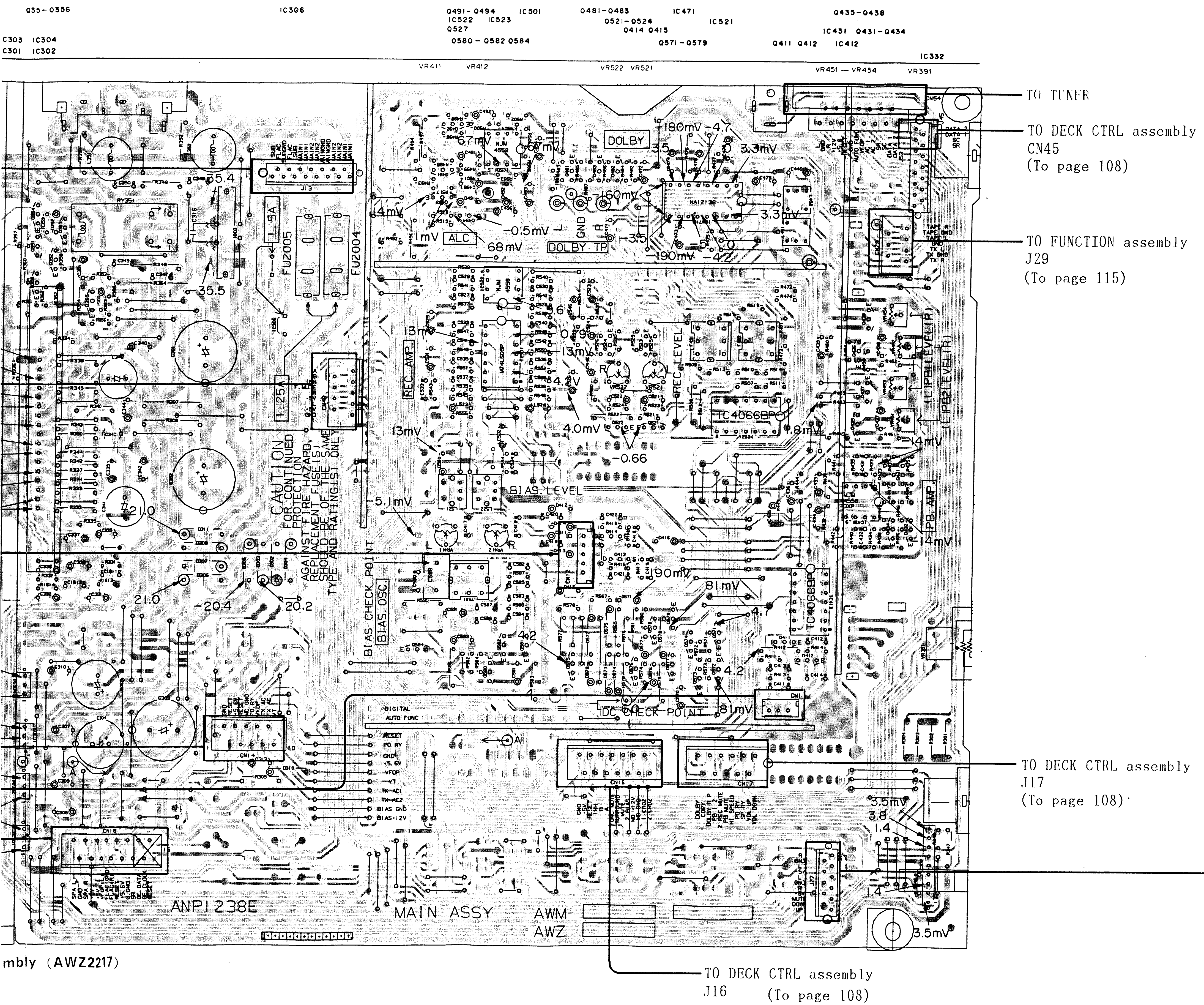
NOTE:
This picture shows the foil side of the printed circuit.



TO TRANS CONNECT assembly
J13
(To page 129)
TO FUNCTION assembly
J48
(To page 115)
TO POWER SUPPLY assembly
J14
(To page 128)
TO AMP.GEQ CTRL assembly
J18
(To page 109)
TO DECK CTRL assembly
J16
(To page 108)
AF assembly (AWZ2217)
HEAD PHONE assembly
MECHA-1
PB HEAD
MECHA-2
ERASE HEAD
REC/PB HEAD
MAIN ASSY
ANP1238E
AWM
AWZ
DOLBY
DOLBY TP
ALC
REC.LEVEL
REC.AMP
BIAS LEVEL
BIAS CHECK POINT
DC CHECK POINT
FU5002
FU5004
A
B
C
D
1
2
3
4
5
6

10.3.4 AF(AWZ2217),MAIN VR and HEADPHONE assembly

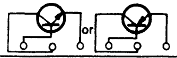
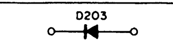
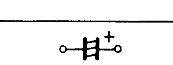
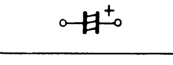
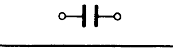

1
2
3
4
5
6
A
B
C
D
035-0356
IC303 IC304
IC301 IC302
IC306
0491-0494 IC501
IC522 IC523
0527
0580-0582 0584
0481-0483 IC471
0521-0524 IC521
0414 0415
0571-0579
0435-0438
IC431 0431-043
0411 0412 IC412
VR411 VR412
VR522 VR521
VR451 — VR454
TO TRANS CONNECT assembly
J13
(To page 129)
TO FUNCTION assembly
J48
(To page 115)
TO POWER SUPPLY assembly
J14
(To page 128)
TO AMP.GEQ CTRL assembly
J18
(To page 109)
TO DECK CTRL assembly
J16
(To page 108)
MECHA-1
PB HEAD
MECHA-2
ERASE HEAD
REC/PB HEAD
HEAD PHONE assembly
AWZ
AF assembly (AWZ2217)
ANP1238E
MAIN ASSY
AWM
AWZ
CAUTION FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACEMENT FUSE SHOULD BE OF THE SAME TYPE AND RATING(S) ONLY
FU2005
FU2004
1.5A
1.25A
DOLBY
DOLBY TP
ALC
GND
REC. AMP.
REC. LEVEL
BIAS LEVEL
BIAS CHECK POINT
BIAS OSC
DC CHECK POINT
DIGITAL
AUTO FUNC
TC4066BP
TC4066BP
HA12136
NJM 4558
M74LS05P
RESET
PD RY
GND
-5.6V
-VFDP
-VT
TX-AC1
TX-AC2
BIAS GND
BIAS -12V
CN18
CN14
CN16
CN17
CN26
RY351
-0.4
-1.3
0
33.5
0
-35.4
-34.7
-1.3
-29.5
-0.3
12
21.0
-5
-20.4
5
12
20.2
5.4
35.5
21.0
21.0
-20.4
20.2
67mV
3mV
180mV
-4.7
3.5
3.3mV
160mV
3.3mV
4mV
1mV
-0.5mV
68mV
-3.5
-190mV
-4.2
13mV
0.79
13mV
4.4V
4.0mV
-0.66
13mV
1.8mV
5.1mV
L
R
190mV
81mV
4.7
4.2
4.2
81mV
3.5
3.8
1.4
1.4
3
2
1
5
4
3
2
1


035-0356
IC303 IC304
IC301 IC302
IC306
0491-0494 IC501
IC522 IC523
0527
0580-0582 0584
0481-0483 IC471
0521-0524 IC521
0414 0415
0571-0579
0435-0438
IC431 0431-0434
0411 0412 IC412
IC332
VR411 VR412
VR522 VR521
VR451 — VR454 VR391
TO TUNER
TO DECK CTRL assembly
CN45
(To page 108)
TO FUNCTION assembly
J29
(To page 115)
TO DECK CTRL assembly
J17
(To page 108)
TO DECK CTRL assembly
J16
(To page 108)
DOLBY
DOLBY TP
ALC
GND
HA12136
NJM 4558
M74LS05P
TC4066BP
REC. AMP.
REC LEVEL
BIAS LEVEL
PB. AMP.
(L)PB1LEVEL(R)
(L)PB2LEVEL(R)
BIAS CHECK POINT
BIAS. OSC.
DC CHECK POINT
FU2005
FU2004
1.5A
1.25A
CAUTION
FOR CONTINUED
PROTECTION
AGAINST FIRE HAZARD,
REPLACEMENT FUSE(S)
SHOULD BE OF THE SAME
TYPE AND RATING(S) ONLY
J13
CN14
CN16
CN17
CN18
CN54
CN48
DIGITAL
AUTO FUNC
RESET
PO RY
GND
+5.6V
-VFDP
-VT
TX-AC1
TX-AC2
BIAS GND
BIAS-12V
GND
+5V
RESET
INH
B
A
FUNC MUTE
SURROUND
MUTE
2 BIAS
NO -12V
NO GND
1 CRO2
2 CRO2
DOLBY
COPY
DOLBY R P
PB 1 2
2 REC MUTE
PB MUTE
HI SPEED
PO RY
SP RY
VOL UP
VOL DOWN
TAPE R
TAPE GND
TAPE L
GND
TX L
TX R
DATA 2
DATA 1
A
ANP1238E
MAIN ASSY
AWM
AWZ
180mV
-4.7
3.3mV
3.5
67mV
160mV
0.5mV
-0.5mV
14mV
1mV
68mV
-3.5
190mV
-4.2
3.3
0
13mV
0.6
13mV
4.2V
4.0mV
-0.66
1.8mV
14mV
14mV
5.1mV
90mV
81mV
4.7
4.2
4.2
81mV
35.4
35.5
-35.5
21.0
21.0
-20.4
20.2
3.5mV
3.8
1.4
1.4
3.5mV

mbly (AWZ2217)

NOTE

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
Q504 E○ ○ ○		Transistor
Q215 ○ ○ ○		Radiator type transistor
◎ D203 ○		Diode
○ R237 ○		Resistor
◎ C513 ○		Capacitor (Polarity)
C518		Capacitor (Non-polarity)

Others

P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capactor terminal marked with ◎ (double circles) shows negatine termianl.
4. The diode terminal marked with ◎ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

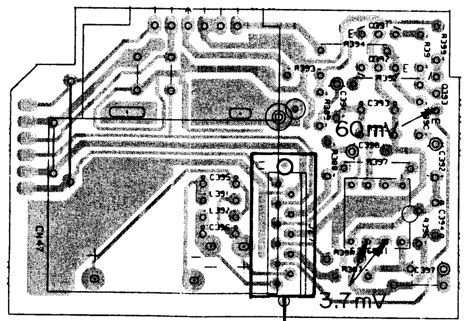
A

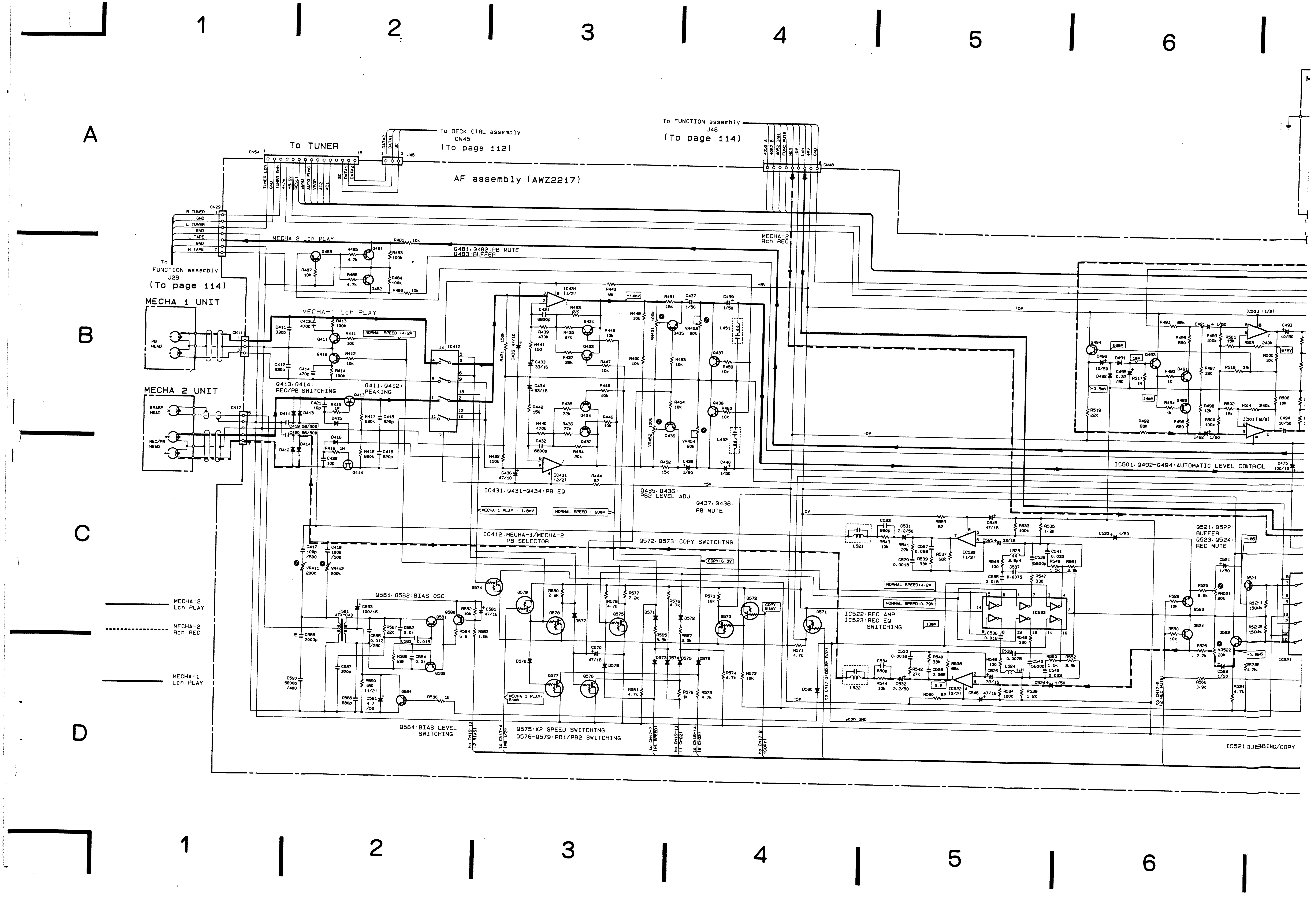
B

C

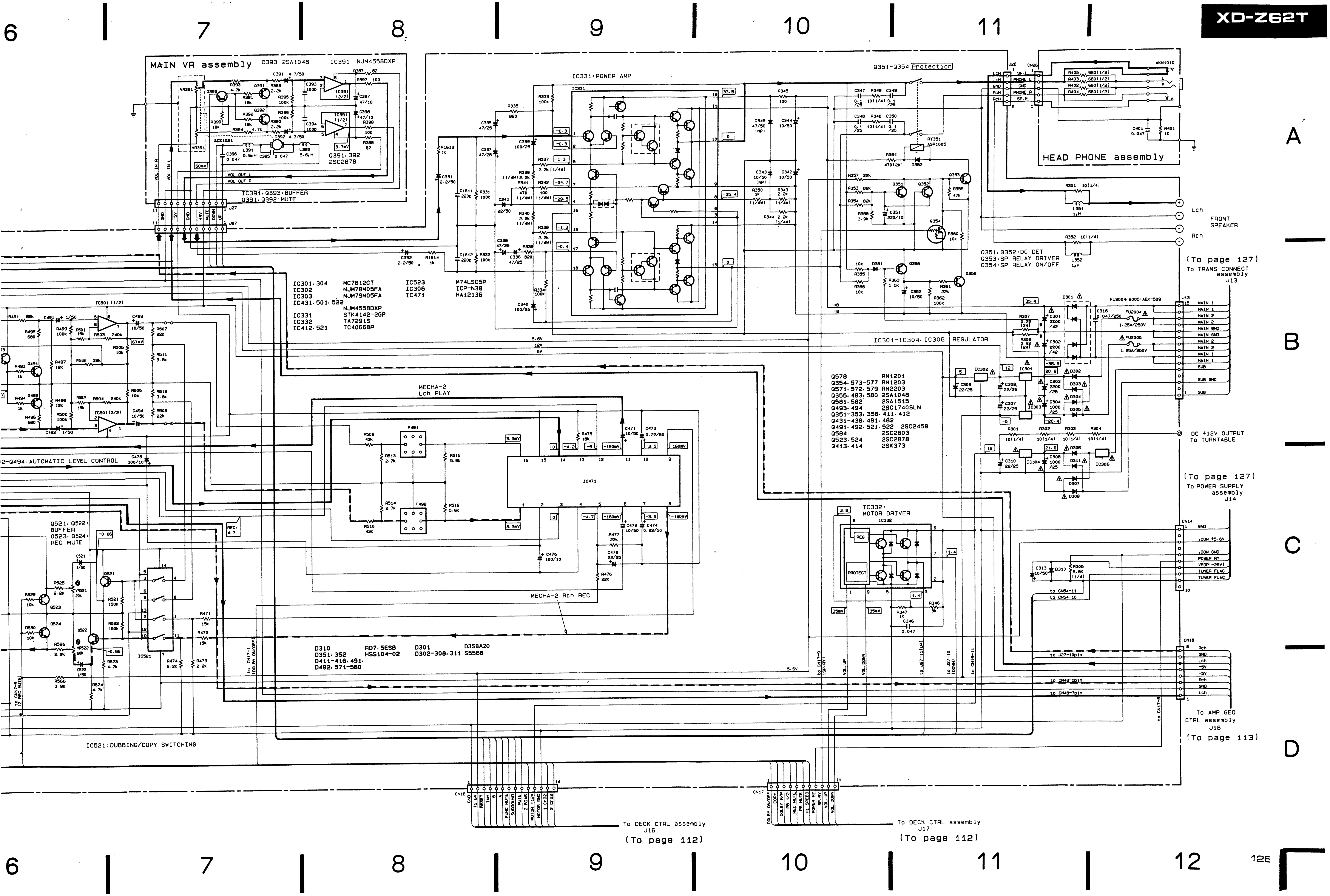
D

MAIN VR assembly

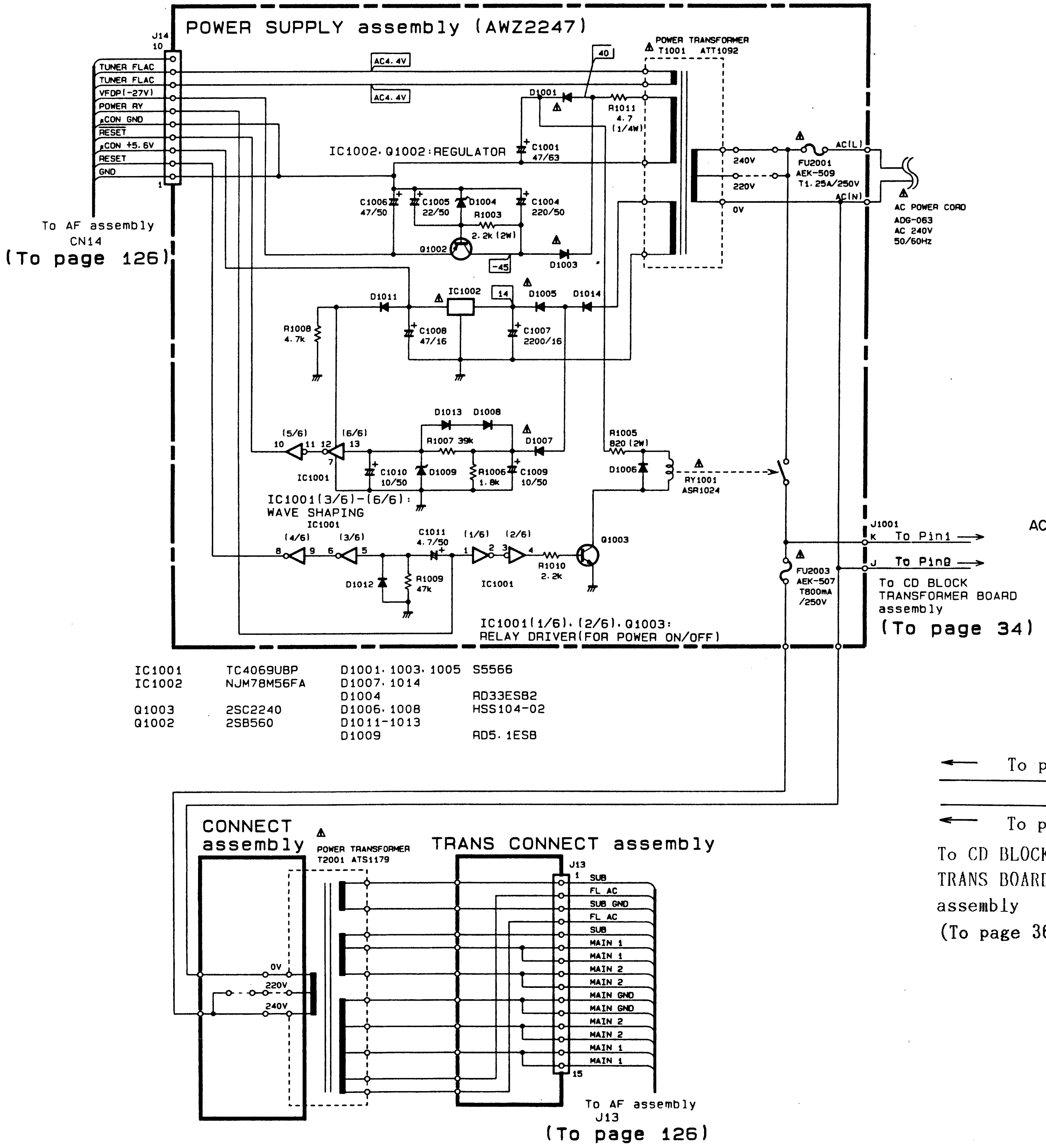

CN47
60mV
3.7mV



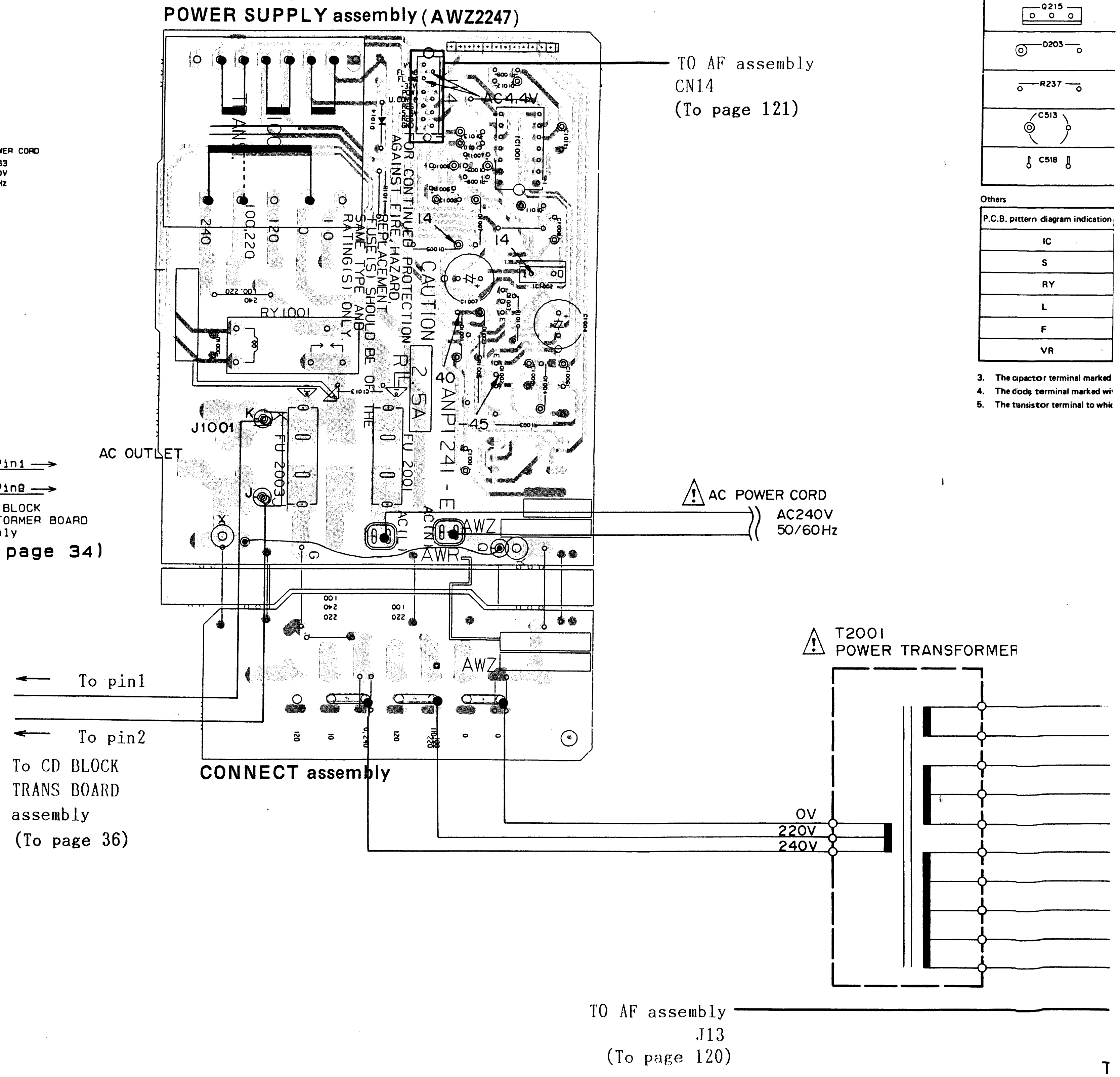
To TUNER
CN54
To DECK CTRL assembly
CN45
(To page 112)
J45
To FUNCTION assembly
J48
(To page 114)
CN48
AF assembly (AWZ2217)
CN29
R TUNER
GND
L TUNER
L TAPE
R TAPE
To FUNCTION assembly
J29
(To page 114)
MECHA 1 UNIT
PB HEAD
MECHA 2 UNIT
ERASE HEAD
REC/PB HEAD
MECHA-2 Lch PLAY
MECHA-1 Lch PLAY
MECHA-2 Rch REC
Q481, Q482: PB MUTE
Q483: BUFFER
Q413, Q414: REC/PB SWITCHING
Q411, Q412: PEAKING
NORMAL SPEED: 4.2V
IC412
IC431
IC431: Q431-Q434: PB EQ
MECHA-1 PLAY: 1.8mV
NORMAL SPEED: 90mV
IC412: MECHA-1/MECHA-2 PB SELECTOR
Q435, Q436: PB2 LEVEL ADJ
Q437, Q438: PB MUTE
Q572, Q573: COPY SWITCHING
COPY: 6.0V
COPY: 81mV
Q581, Q582: BIAS OSC
Q584: BIAS LEVEL SWITCHING
MECHA 1 PLAY: 81mV
Q575: X2 SPEED SWITCHING
Q576-Q579: PB1/PB2 SWITCHING
IC501, Q492-Q494: AUTOMATIC LEVEL CONTROL
IC501 (1/2)
IC501 (2/2)
IC522: REC AMP
IC523: REC EQ SWITCHING
NORMAL SPEED: 4.2V
NORMAL SPEED: 0.79V
Q521, Q522: BUFFER
Q523, Q524: REC MUTE
IC521
IC521: DUBBING/COPY
+5V
-5V
MECHA-2 Lch PLAY
MECHA-2 Rch REC
MECHA-1 Lch PLAY
to CN16-10 (2 BIAS)
to CN17-4 (PB 1/2)
to CN17-7 (HI SPEED)
to CN16-13 (1 CrO2)
to CN16-14 (2 CrO2)
to CN17-2 (COPY)
to CN17-3 (DOLBY R/P)
to CN17-5 (2 REC MUTE)
1
2
3
4
5
6
A
B
C
D


6
7
8
9
10
11
12
A
B
C
D
MAIN VR assembly
Q393 2SA1048
IC391 NJM4558DXP
VR391
ACX1021
Q391·392
2SC2878
VOL IN R
VOL IN L
VOL OUT L
VOL OUT R
IC391·Q393:BUFFER
Q391·Q392:MUTE
J27
GND
-5V
GND
+5V
MUTE
DOWN
UP
IC331:POWER AMP
IC331
Q351-Q354 Protection
RY351 ASR1005
Q351·Q352:DC DET
Q353:SP RELAY DRIVER
Q354:SP RELAY ON/OFF
J26
CN26
AKN1010
HEAD PHONE assembly
Lch
Rch
FRONT SPEAKER
(To page 127)
To TRANS CONNECT assembly
J13
MAIN 1
MAIN 2
MAIN GND
SUB
SUB GND
FU2004·2005:AEK-509
1.25A/250V
IC301-IC304, IC306: REGULATOR
DC +12V OUTPUT
To TURNTABLE
(To page 127)
To POWER SUPPLY assembly
J14
CN14
GND
+CON +5.6V
+CON GND
POWER RY
VFDP(-29V)
TUNER FLAG
IC332: MOTOR DRIVER
IC332
REG
PROTECT
CN18
to J27-10pin
to CN48-5pin
to CN48-7pin
to CN54-11
to CN54-10
To AMP GEQ CTRL assembly
J18
(To page 113)
IC301·304 MC7812CT
IC302 NJM78M05FA
IC303 NJM79M05FA
IC431·501·522 NJM4558DXP
IC331 STK4142-2GP
IC332 TA7291S
IC412·521 TC4066BP
IC523 M74LS05P
IC306 ICP-N38
IC471 HA12136
Q578 RN1201
Q354·573-577 RN1203
Q571·572·579 RN2203
Q355·483·580 2SA1048
Q581·582 2SA1515
Q493·494 2SC1740SLN
Q351-353·356·411·412
Q431-438·481·482
Q491·492·521·522 2SC2458
Q584 2SC2603
Q523·524 2SC2878
Q413·414 2SK373
D310 RD7.5ESB
D351·352 HSS104-02
D411-416·491·
D492·571-580
D301 D3SBA20
D302-308·311 S5566
MECHA-2 Lch PLAY
MECHA-2 Rch REC
IC471
F491
F492
IC501(1/2)
IC501(2/2)
Q492-Q494:AUTOMATIC LEVEL CONTROL
Q521·Q522: BUFFER
Q523·Q524: REC MUTE
IC521
IC521:DUBBING/COPY SWITCHING
CN16
GND
+5.6V
RESET
IN1
B
A
FUNC MUTE
SURROUND
MUTE
2 BIAS
MOTOR +12V
MOTOR GND
1 Cro2
2 Cro2
To DECK CTRL assembly
J16
(To page 112)
CN17
DOLBY ON/OFF
COPY
DOLBY B/P
PB 1/2
REC MUTE
PB MUTE
H1 SPEED
POWER RY
SP.RY
UP
VOL.DOWN
To DECK CTRL assembly
J17
(To page 112)

10.3.5 POWER SUPPLY(AWZ2247),CONNECT and TRANS CONNECT assembly


POWER SUPPLY assembly (AWZ2247)
J14
10
1
TUNER FLAC
TUNER FLAC
VFDP(-27V)
POWER RY
μCON GND
RESET
μCON +5.6V
RESET
GND
To AF assembly
CN14
(To page 126)
AC4.4V
AC4.4V
40
POWER TRANSFORMER
T1001 ATT1092
D1001
R1011
4.7
(1/4W)
IC1002, Q1002:REGULATOR
C1001
47/63
C1006
47/50
C1005
22/50
D1004
R1003
2.2k (2W)
C1004
220/50
Q1002
-45
D1003
240V
220V
0V
FU2001
AEK-509
T1.25A/250V
AC(L)
AC(N)
AC POWER CORD
ADG-063
AC 240V
50/60Hz
D1011
IC1002
14
D1005
D1014
R1008
4.7k
C1008
47/16
C1007
2200/16
D1013
D1008
(5/6)
(6/6)
10
11
12
13
7
IC1001
R1007 39k
D1007
C1010
10/50
D1009
R1006
1.8k
C1009
10/50
R1005
820 (2W)
D1006
RY1001
ASR1024
IC1001(3/6)-(6/6):
WAVE SHAPING
IC1001
(4/6)
(3/6)
8
9
6
5
C1011
4.7/50
(1/6)
(2/6)
1
2
3
4
R1010
2.2k
Q1003
D1012
R1009
47k
IC1001
IC1001(1/6), (2/6), Q1003:
RELAY DRIVER(FOR POWER ON/OFF)
J1001
K To Pin1
J To Pin2
FU2003
AEK-507
T800mA
/250V
To CD BLOCK
TRANSFORMER BOARD
assembly
(To page 34)
CONNECT
assembly
POWER TRANSFORMER
T2001 ATS1179
0V
220V
240V
TRANS CONNECT assembly
J13
1
15
SUB
FL AC
SUB GND
FL AC
SUB
MAIN 1
MAIN 1
MAIN 2
MAIN 2
MAIN GND
MAIN GND
MAIN 2
MAIN 2
MAIN 1
MAIN 1
To AF assembly
J13
(To page 126)

IC1001	TC4069UBP	D1001, 1003, 1005	S5566
IC1002	NJM78M56FA	D1007, 1014	
		D1004	RD33ESB2
Q1003	2SC2240	D1006, 1008	HSS104-02
Q1002	2SB560	D1011-1013	
		D1009	RD5.1ESB


POWER SUPPLY assembly (AWZ2247)
TO AF assembly
CN14
(To page 121)
AC4.4V
14
14
240
100,220
120
0
10
RY1001
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACEMENT FUSE(S) SHOULD BE OF THE SAME TYPE AND RATING(S) ONLY.
CAUTION
RL 2.5A
40
-45
ANP1241-E
IC1001
IC1002
C1007
C1004
J1001
K
J
FU2003
FU2001
AC OUTLET
X
G
AC(L)
AC(N)
AWZ
AWR
AC POWER CORD
AC240V
50/60Hz
To pin1
To pin2
To CD BLOCK
TRANS BOARD
assembly
(To page 36)
CONNECT assembly
AWZ
T2001
POWER TRANSFORMER
0V
220V
240V
TO AF assembly
J13
(To page 120)

NOTE

1. This P.C.B connection diagran
2. The parts which have been r
with the corresponding wiring

P.C.B. pattern diagram indication
Q504 E
Q215
D203
R237
C513
C518

Others

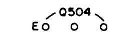
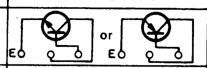
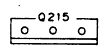
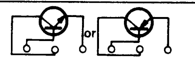
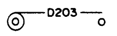
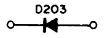
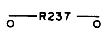
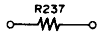
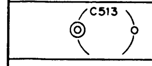
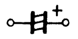
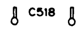
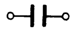
P.C.B. pattern diagram indication
IC
S
RY
L
F
VR

3. The capactor terminal marked
4. The diode terminal marked wi
5. The transistor terminal to whic

T

NOTE

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

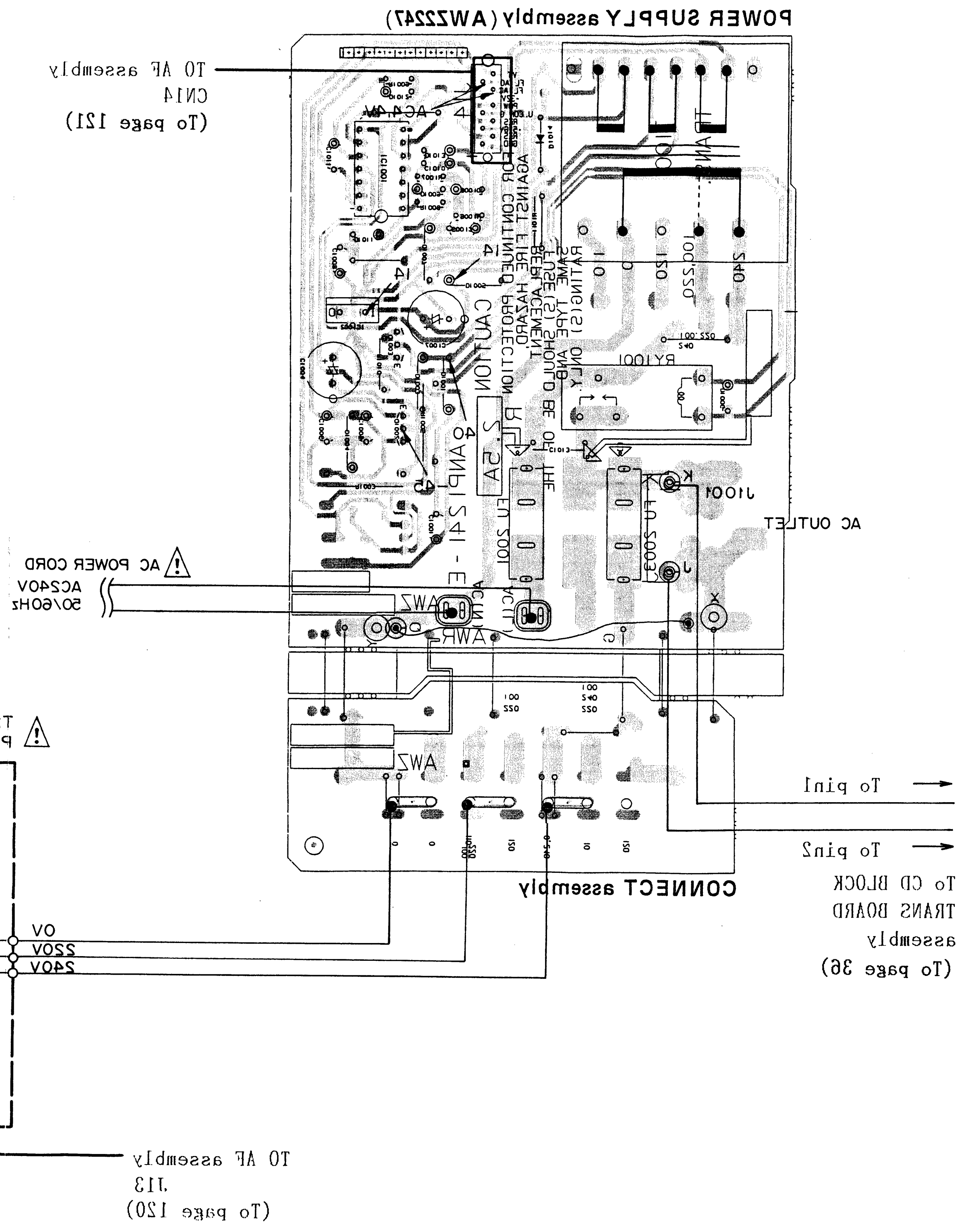
P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
		Transistor
		Radiator type transistor
		Diode
		Resistor
		Capacitor (Polarity)
		Capacitor (Non-polarity)

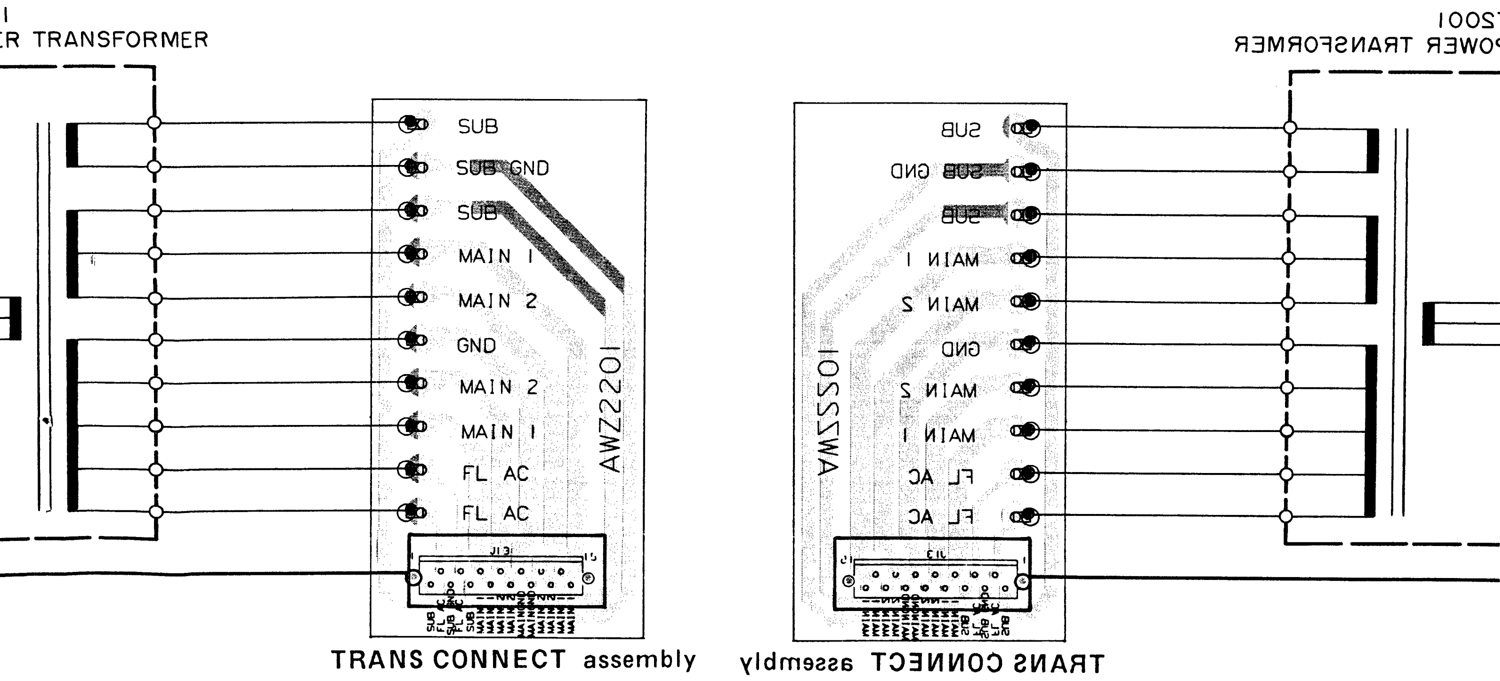
Others

P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capactor terminal marked with ◎(double circles) shows negatine termianl.
4. The diode terminal marked with ◎ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

NOTE:
This picture shows the foil side of the printed circuit.


POWER SUPPLY assembly (AWZ2247)
TO AF assembly
CN14
(To page 121)
AC4
IC1001
CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD REPLACE WITH SAME TYPE FUSE(S) SHOULD BE OF THE RATING(S) AND ONLY.
AC
T2.5A
ANPI241-E
FU2001
FU2003
RY1001
J1001
AC OUTLET
AC POWER CORD
AC240V
50/60Hz
AWZ
AWR
K
J
X
G
0
120
100,220
240
CONNECT assembly
To pin1
To pin2
To CD BLOCK
TRANS BOARD
assembly
(To page 36)
T2001
POWER TRANSFORMER
ER TRANSFORMER
0V
220V
240V
SUB
SUB GND
SUB
MAIN 1
MAIN 2
GND
MAIN 2
MAIN 1
FL AC
FL AC
AWZ2201
AWZ2201
J13
TO AF assembly
J13
(To page 120)



TRANS CONNECT assembly

TRANS CONNECT assembly

A

B

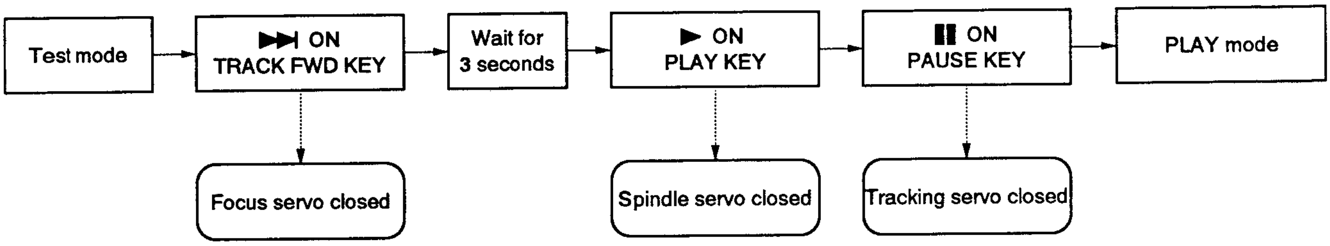
C

D

In the test mode, the servos are closed and opened individually. Consequently, the servos must each be closed one at a time (in serial sequence) in order to set the unit to normal PLAY mode. Note also that during test mode the unit will not enter the PLAY mode when the PAUSE (⏸) key is pressed alone.

Example: Switching from STOP to PLAY mode.

* In the test mode, the servos must be operated in serial sequence.

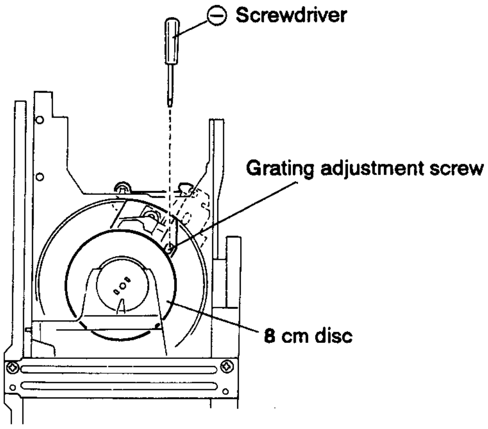
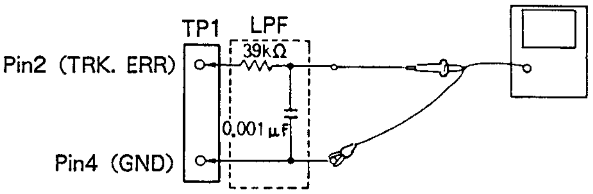


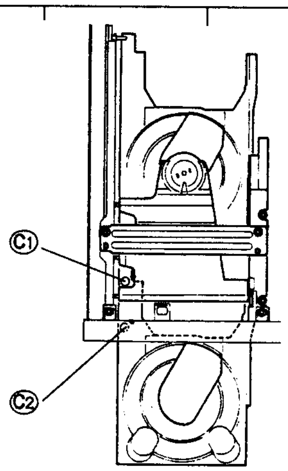
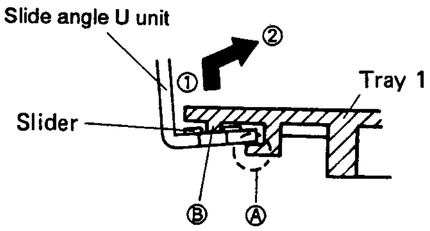
- **Key Functions in the Test Mode**

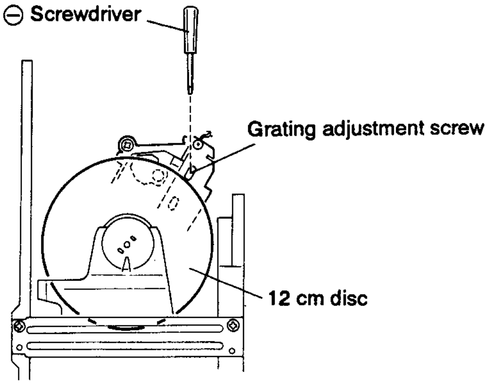
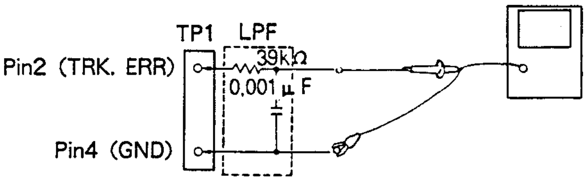
Symbol	Key name	Function during test mode	Description
⏭	TRACK FWD	Focus servo close	Turns ON the laser diode, and raises/lowers the focusing actuator to close the focus servo. After closing disc tray 1, the tray is moved to PLAY position.
▶	PLAY	Spindle servo close	Closes the servo in the CLV-A mode after starting the spindle motor.
⏸	PAUSE	Tracking servo close/open	Performs toggle operation:closes the tracking servo and sets to PLAY mode when pressed (provided the focus and spindle servos are closed), at which time the PAUSE indicator illuminates; opens the tracking servo when pressed again.
◀◀	MANUAL SEARCH REV	Carriage reversal (inward movement)	Moves carriage rapidly (3 cm/s) toward the center. Because there is no safety mechanism for stopping the carriage, release the key when the carriage reaches the innermost track.
▶▶	MANUAL SEARCH FWD	Carriage advance (outward movement)	Moves carriage rapidly (3 cm/s) toward the outer edge. Because there is no safety mechanism for stopping the carriage, release the key when the carriage reaches the outermost track.
■	STOP	Stop	Stops all servos and returns system to its initial state.
▲	OPEN/CLOSE Disc I	(Disc tray) open/close	Opens and closes the disc tray. However, pickup does not return to rest when opening, and remains stationary when closing the tray.

Table 9–1.

Step No.	Oscilloscope Setting		Test Points	Adjusting Points	Check Items/ Adjustment Specifications	Adjustment Procedure
	V	H				
1	TRACKING OFFSET, FOCUS OFFSET, RF OFFSET ADJUSTMENT					
						• Set to test mode (see page 46).
				VR5 (TRK. BAL)	Tracking offset 45°	• Turn VR5 TRK. BAL (tracking balance) counterclockwise about 45° from center position.
			TP1 Pin 2 (TRK. ERR)	VR7 (TRK. OFS)	0V ± 50 mV	• Adjust VR7 TRK.OFS (tracking offset) so that the TRK. ERR (tracking error) voltage at TP1 Pin 2 becomes 0V ± 50 mV.
			TP1 Pin 6 (FCS. ERR)	VR6 (FCS. OFS)	Focus offset 0V ± 50 mV	• Adjust VR6 FCS.OFS (focus offset) so that the FCS.ERR (focus error) voltage at TP1 Pin 6 becomes 0V ± 50 mV.
			TP1 Pin 1 (RF output)	VR2 (RF. OFS)	RF offset 100 mV ± 50 mV	• Adjust VR2 RF.OFS (RF offset) so that the RF output voltage at TP1 Pin 1 becomes 100 mV ± 50 mV.
						Note: After performing tracking offset adjustment, be sure to perform "6. TRACKING BALANCE ADJUSTMENT."
2	RF LEVEL ADJUSTMENT					
						• Set to test mode (see page 46).
			TP1 Pin 1 (RF output)	VR1 (laser power)		• Play the test disc, connect the oscilloscope to TP1 Pin 1 (RF output), and measure the P-P voltage of the RF waveform.
					$1.5\text{V}\ ^{+0.2\text{V}}_{-0\text{V}}$.	• Adjust so that the voltage becomes $1.5\text{V}\ ^{+0.2\text{V}}_{-0\text{V}}$.
3	LD (LASER DIODE) POWER CHECK					
						• Set to test mode (see page 46).
						• Press the TRACK FWD (▶▶I) key to turn ON the LD (laser diode).
					Less than 0.13 mW	• Place the sensor of the laser power meter directly above the objective lens and confirm that the output power of the LD does not exceed 0.13 mW.

Step No.	Oscilloscope Setting		Test Points	Adjusting Points	Check Items/ Adjustment Specifications	Adjustment Procedure
	V	H				
4	**FOCUS LOCK AND SPINDLE LOCK CHECK**					
	V 0.5V/div	H 100 msec /div	TP1 Pin 1 (RF output)		RF output exists Normal (clockwise) rotation	• Set test disc. • Set to test mode (see page 46). • Press the MANUAL SEARCH FWD (▶▶) key to move the pickup close to the center of the disc. • Observe the output of TP1 Pin 1 (RF output) on the oscilloscope. Confirm that the RF signal is output after pressing the TRACK FWD (▶▶|)key. • Press the PLAY (▶) key and confirm that the disc rotates at constant speed (approx. 30 rpm near center of disc) in the normal (clockwise) direction; make sure that the disc does not rotate too fast or counter-clockwise.
5	**GRATING ADJUSTMENT (1) (using an 8 cm disc)**					
	 Fig. 9−2.  TP1 LPF 39kΩ 0.001 µF Pin2 (TRK. ERR) Pin4 (GND) Fig. 9−3.					Note: This adjustment can only be performed using a 8 cm disc having pits over a diameter of 75 mm. • Set to test mode (see page 46). • Set the 8 cm disc. Shift the pickup to the outermost track so that it is positioned over pits and the pickup grating adjustment hole is visible from the hole in the servo mechanism (see Fig. 9−2.). • Press the TRACK FWD (▶▶|) and PLAY (▶) keys in sequence to close the focus servo and spindle servo (do not close the tracking servo). • Observe the waveform output of TP1 Pin 2 TRK.ERR (tracking error) on the oscilloscope, inserting a 4 kHz low-pass filter (see Fig. 9-3.).

Step No.	Oscilloscope Setting		Test Points	Adjusting Points	Check Items/ Adjustment Specifications	Adjustment Procedure
	V	H				
	0.5V/div	5 msec/div	TP1 Pin 2 (TRK. ERR)	Grating Grating	Null Point Maximum amplitude	• Insert ⊖ screwdriver into the grating adjustment hole, and turn to find the null point (see Photo 9-1.). • Next, slowly turn ⊖ screwdriver in counterclockwise direction from the null point and adjust until the waveform (tracking error signal) reaches maximum amplitude (see Photo 9-2.). Note: Use caution since inserting ⊖ screwdriver forcefully will cause the pickup unit to float upward. • Finally, confirm that there is no major fluctuation in the P-P voltage of the tracking error signal (do not insert the cutoff 4 kHz low-pass filter) when the pickup is shifted to the innermost track and when the pickup is shifted to the outermost track. If there is a difference of more than ± 10%, re-adjust by turning the grating adjustment screw to the maximum amplitude point of the tracking error signal.
5	**GRATING ADJUSTMENT (2) (without 8 cm disc)**					
	 Fig. 9-4.  Fig. 9-5.					Perform this adjustment when an 8 cm disc is not available and Grating adjustment (1) cannot be performed. Remove the tray 1 before performing this adjustment. • Removal of tray 1 1. Set tray 1 to OPEN position. 2. Remove screws C1, C2 holding tray 1 in Fig. 9-4. 3. Move tray 1 in the direction of arrow in Fig. 9-5, and as detaching projection Ⓑ of tray 1, free slide angle U unit from hook Ⓐ of tray 1. 4. Pull out tray 1 as raising its side of slide angle U unit slightly.

Step No.	Oscilloscope Setting		Test Points	Adjusting Points	Check Items/ Adjustment Specifications	Adjustment Procedure
	V	H				
	 Fig. 9–6  TP1 LPF 39kΩ 0.001 µ F Pin2 (TRK. ERR) Pin4 (GND) Fig. 9–7.					Note: This adjustment can only be performed using a disc having pits up to a diameter 115 mm. The test disc (YEDS–7) cannot be used. • Set to test mode (see page 46). • Set a disc. Shift the pickup to the outermost track so that it is positioned over pits and the pickup grating adjustment hole is visible from the hole in the servo mechanism (see Fig. 9–6.). • Press the TRACK FWD (▶▶|) and PLAY (▶) keys in sequence to close the focus servo and spindle servo (do not close the tracking servo). • Observe the waveform output of TP1 Pin 2 TRK. ERR (tracking error) on the oscilloscope, inserting a 4 kHz low–pass filter (see Fig. 9–7.).
	0.5V/div	5 msec/div	TP1 Pin 2 (TRK. ERR)	Grating Grating	Null Point Maximum amplitude	• Insert ⊖ screwdriver into the grating adjustment hole, and turn to find the null point (see Photo 9–1.). • Next, slowly turn ⊖ screwdriver in counterclockwise direction from the null point and adjust until the waveform (tracking error signal) reaches maximum amplitude (see Photo 9–2.). Note: Use caution since inserting ⊖ screwdriver forcefully will cause the pickup unit to float upward. • Finally, confirm that there is no major fluctuation in the P–P voltage of the tracking error signal (do not insert the cutoff 4 kHz low–pass filter) when the pickup is shifted to the innermost track and when the pickup is shifted to the outermost track. If there is a difference of more than ± 10%, re–adjust by turning the grating adjustment screw to the maximum amplitude point of the tracking error signal.

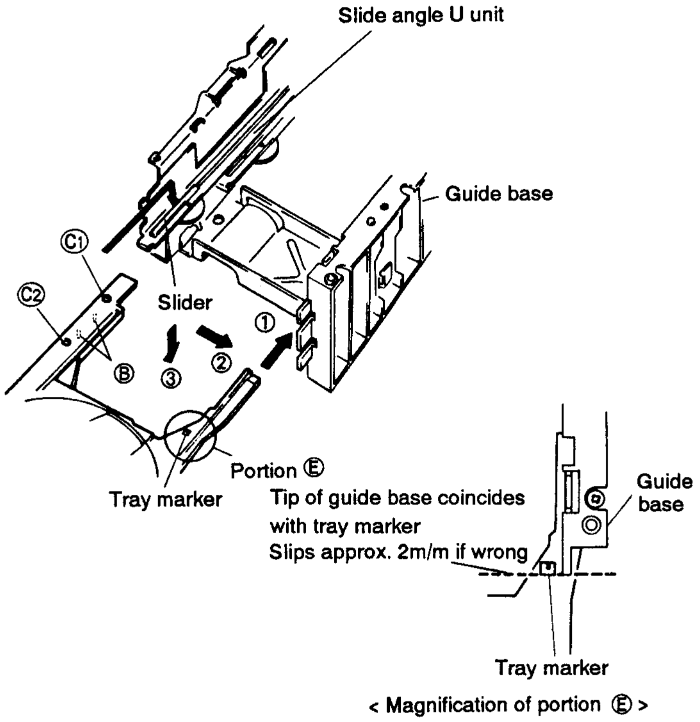
<table>
<tr><th rowspan="2">Step No.</th><th colspan="2">Oscilloscope Setting</th><th rowspan="2">Test Points</th><th rowspan="2">Adjusting Points</th><th rowspan="2">Check Items/ Adjustment Specifications</th><th rowspan="2">Adjustment Procedure</th></tr>
<tr><th>V</th><th>H</th></tr>
<tr><td></td><td colspan="5">

Slide angle U unit
Guide base
(C1)
(C2)
Slider
①
②
③
②
Ⓑ
Portion Ⓔ
Tray marker
Tip of guide base coincides with tray marker
Slips approx. 2m/m if wrong
Guide base
Tray marker
< Magnification of portion Ⓔ >

Fig. 9–8

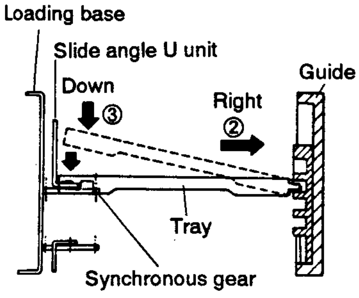

Loading base
Slide angle U unit
Down
③
Right
②
Guide
Tray
Synchronous gear

Fig. 9–9.

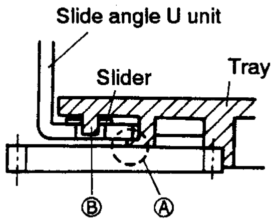

Slide angle U unit
Slider
Tray
Ⓑ
Ⓐ

Fig. 9–10.
</td><td>
After completing adjustments, attach tray 1 in the following process.
Remove front panel previously as it disturbs attachment of tray 1.

1. Set slide angle U unit to the foremost position (where opening of tray 1 is completed).
2. Set slider to the foremost position as shown in Fig. 9–8.
3. As shown by dotted line in Fig. 9–9, insert tray 1 aslant to the position that mounting holes of slider and tray 1 coincide (make sure that slider does not move backward).
4. Down tray 1 as pulling it to the right (toward guide). Do it as holding slider from below with finger.
5. Adjust position of tray 1 so that hook Ⓐ and projection Ⓑ are properly fixed as shown in Fig. 9–10. Also do it so that to engage synchronous gear with gear of tray 1.
6. Make sure that mounting holes of slider are being positioned in the center of tray 1's screw holes, and tighten screws in order of (C1),(C2).
7. After completing attachment of tray 1, with tray 1's complete-open state, make sure that mutual position shown in the portion Ⓔ's enlarged illustration is being satisfied.
If it does not, the adjustment must be made again from the beginning.
</td></tr>
</table>

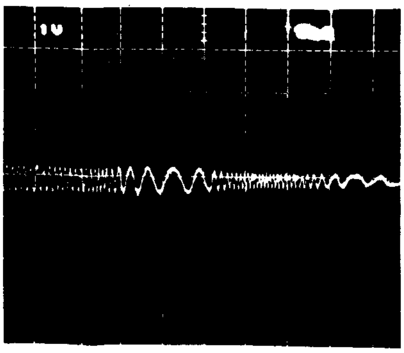


Photo 9–1. Null point waveform

⇨

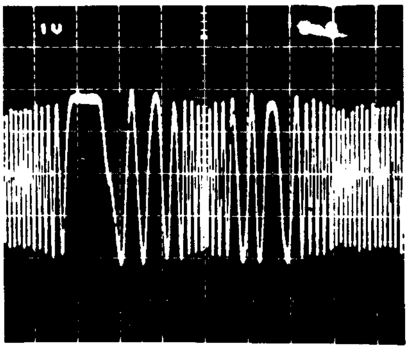


Photo 9–2. Maximum amplitude

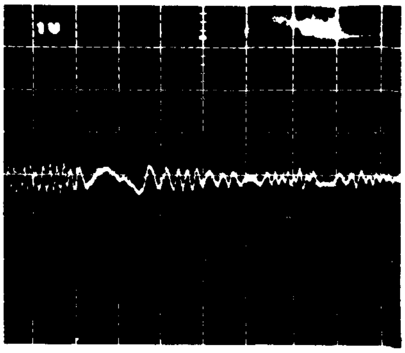


Photo 9–3. Waveform off Null Point

Step No.	Oscilloscope Setting		Test Points	Adjusting Points	Check Items/ Adjustment Specifications	Adjustment Procedure
	V	H				
6	**TRACKING BALANCE ADJUSTMENT**					
	0.5V/div	5 msec/div	TP1 Pin 2 (TRK. ERR)	VR5 (TRK. BAL)		• Set the test disc. • Set to test mode (see page 46). • Press the MANUAL SEARCH FWD (▶▶) key to position the carriage near the center of the disc. • Press the TRACK FWD (▶▶|) key and then the PLAY (▶) key to cause the disc to rotate. • Observe the waveform output by TP1 Pin 2 TRK.ERR (tracking error) on the oscilloscope and adjust VR5 TRK. BAL (tracking balance) so that the DC component disappears from the tracking error signal.

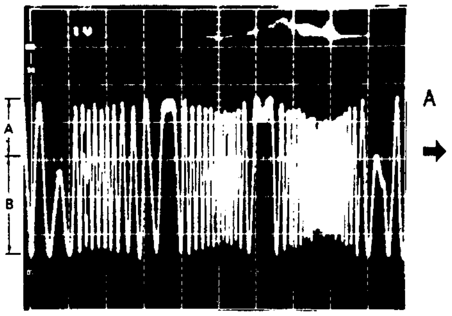


Photo 9–4. With DC component

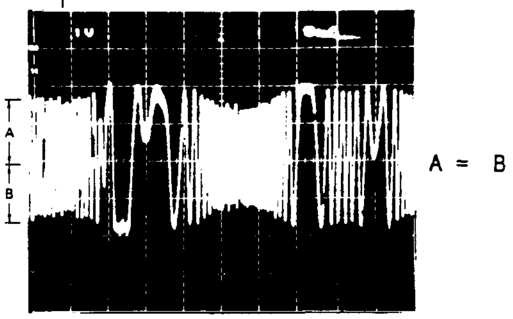


Photo 9–5. Without DC component

Step No.		Adjustment Procedure
7	**TANGENTIAL ADJUSTMENT**	
		• Set to test mode (see page 46). • Open tray 1 and set the disc. • Close tray 1. • Press the MANUAL SEARCH FWD (▶▶) key to position the pickup at the outermost track. • Rotate gear-pulley by hand in the direction indicated by the arrow and move tray 2 up so that the tangential adjustment screw section becomes visible. • Insert a hexagonal wrench into the tangential adjustment screw section from the right-aslant in the rear of mechanism. • Press the MANUAL SEARCH REV (◀◀) key to position the pickup somewhere at the middle of the tracks. • Press the TRACK FWD (▶▶|) key, PLAY (▶) key, and PAUSE (▮▮) key in that order to close all the servos (the pause indicator will illuminate).

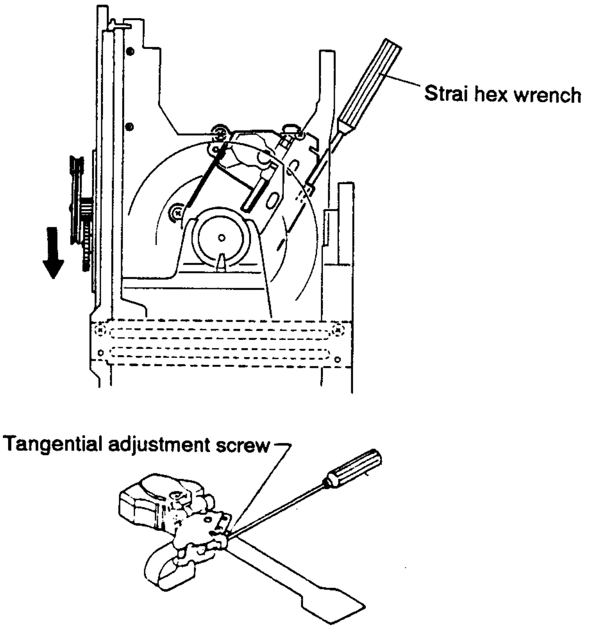
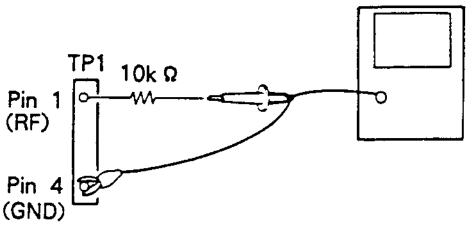


Fig. 9–11.

Step No.	Oscilloscope Setting		Test Points	Adjusting Points	Check Items/ Adjustment Specifications	Adjustment Procedure
	V	H				
		200 ns/div	TP1 Pin 1 (RF output)	Tangential adjustment screw	Sharpest possible eye pattern	• Observe the waveform output by TP1 Pin 1 (RF output) on the oscilloscope and adjust the tangential adjustment screw to achieve the sharpest possible eye pattern. • The correct adjustment point is halfway between the two points where the eye pattern becomes blurred when rotating the tangential adjustment screw clockwise and then counterclockwise. When the whole waveform becomes clear, concentrate on sharpening the fine lines forming the diamond shape at the center of the eye pattern (see Photo 9-6.). Adjust until the diamond shape consists of single thin lines.  Fig. 9-12. Note: Use a hexagonal wrench to keep the pickup in raised position while performing this adjustment.

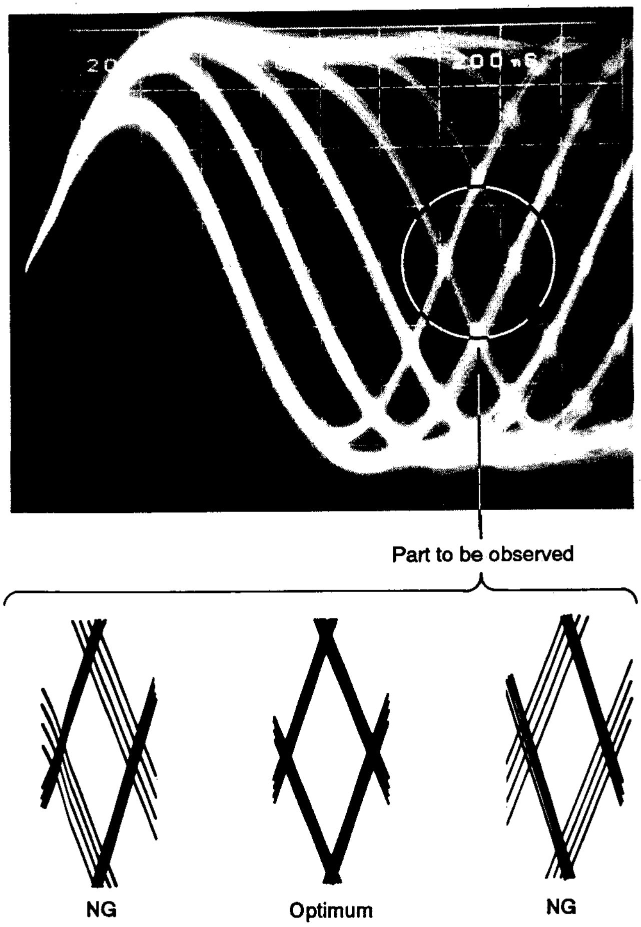


Photo 9–6.

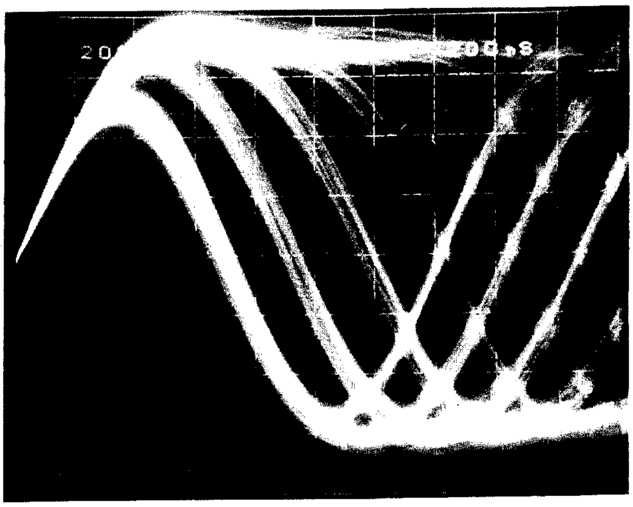


Photo 9–7.

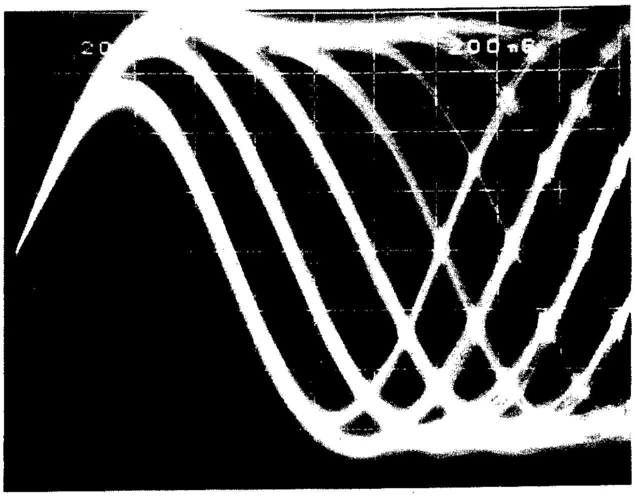


Photo 9–8.

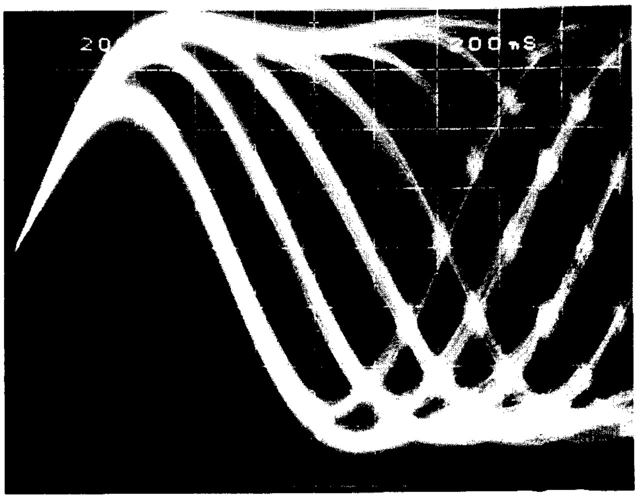
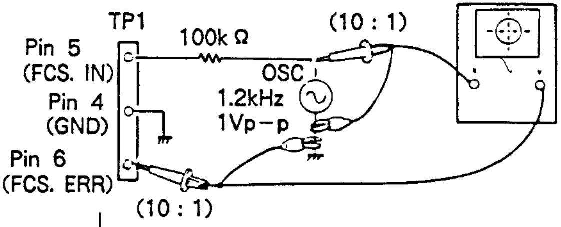
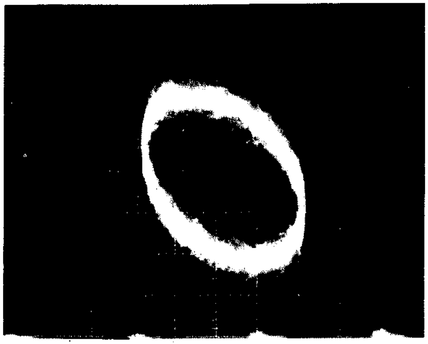


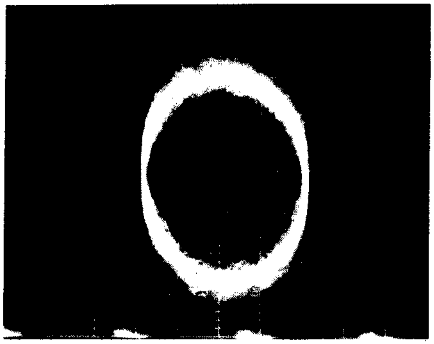
Photo 9–9.

Step No.	Oscilloscope Setting		Test Points	Adjusting Points	Check Items/ Adjustment Specifications	Adjustment Procedure
	V	H				
8	**FOCUS GAIN ADJUSTMENT**					
	CH1 (X) , CH2 (Y) 20 mV/div, 5 mV/div (probe: 10:1)		X–axis TP1 Pin 5 (FCS. IN) Y–axis TP1 Pin 6 (FCS. ERR)	VR3 (FCS. GAN)	Phase difference of 90 °	• With the oscillator power turned OFF, connect the oscilloscope and oscillator as shown in Fig. 9–13. • Set to normal PLAY mode. • Turn ON the power of the oscillator and set it to output a 1.2 kHz 1 Vp–p signal. Note: Some oscillators discharge a DC voltage when power is turned on. In that case it is recommended to connect the oscillator after it has been turned on. • Adjust VR3 FCS.GAN (focus gain) so that the Lissajous figures form a horizontal circle on the oscilloscope (phase difference of 90 °).  TP1 Pin 5 (FCS. IN) Pin 4 (GND) Pin 6 (FCS. ERR) 100k Ω (10 : 1) OSC 1.2kHz 1Vp−p (10 : 1) Fig. 9–13.



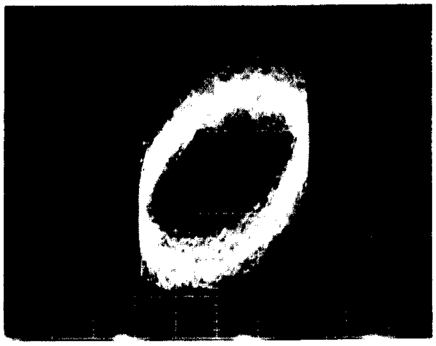
High gain

Photo 9–10.



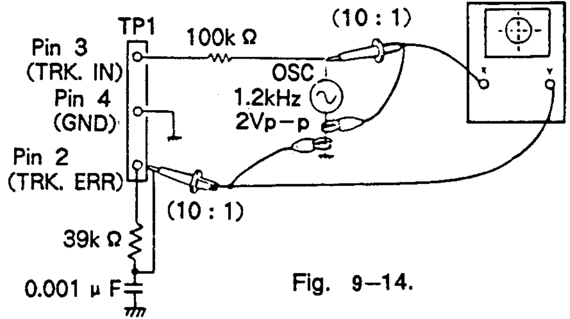
Optimum gain

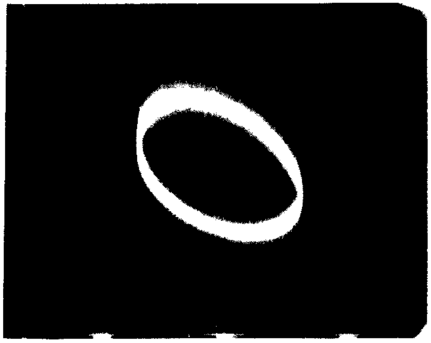
Photo 9–11.



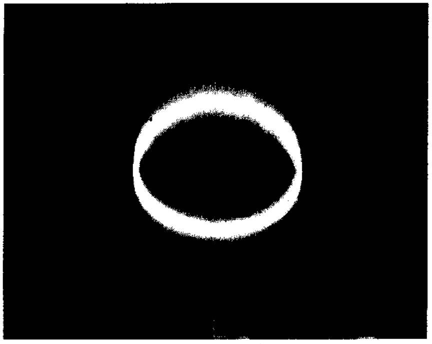
Low gain

Photo 9–12.

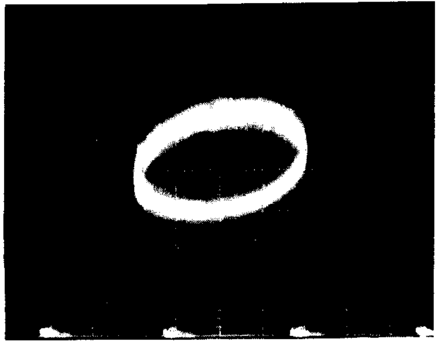
Step No.	Oscilloscope Setting		Test Points	Adjusting Points	Check Items/ Adjustment Specifications	Adjustment Procedure
	V	H				
9	**TRACKING GAIN ADJUSTMENT**					
	CH1 (X), CH2 (Y) 50 mV/div, 5 mV/div (probe: 10:1)		X–axis TP1 Pin 3 (TRK. IN) Y–axis TP1 Pin 2 (TRK. OUT)	VR4 (TRK. GAN)	Phase difference of 90°	• With the oscillator power turned OFF, connect the oscilloscope and oscillator as shown in Fig. 9–14. • Set to normal PLAY mode. • Turn ON the power of the oscillator and set it to output a 1.2 kHz 2 Vp–p signal. Note: Some oscillators discharge a DC voltage when power is turned on. In that case it is recommended to connect the oscillator after it has been turned on. • Adjust VR4 TRK. GAN (tracking gain) so that the Lissajous figures form a horizontal circle on the oscilloscope (phase difference of 90°).  TP1 100k Ω (10 : 1) Pin 3 (TRK. IN) OSC 1.2kHz 2Vp–p Pin 4 (GND) Pin 2 (TRK. ERR) (10 : 1) 39k Ω 0.001 μ F Fig. 9–14.



High gain
Photo 9–13.



Optimum gain
Photo 9–14.



Low gain
Photo 9–15.

Step No.	Oscilloscope Setting		Test Points	Adjusting Points	Check Items/ Adjustment Specifications	Adjustment Procedure
	V	H				
10	**VCO FREE-RUN FREQUENCY ADJUSTMENT**					
			TP2 Pin 2 (PLCK)	VR8 (VCO. ADJ)	4.275 ± 0.025 MHz	• Set to test mode (see page 46). • Short–circuit the ASY and GND jumpers with ⊖ screwdriver or similar tool (see Fig. 9 -1.). • Connect a frequency counter capable of measuring frequencies of 10 MHz and above to the PLCK jumper. • Adjust VR8 VCO. ADJ (VCO free–run adjustment) so that the frequency counter reading becomes 4.275 ± 0.025 MHz.
11	**CONFIRMATION OF S CHARACTER (FOCUS ERROR)**					
			TP1 Pin 6 (FCS. ERR)			• Set to test mode (see page 46). • Short-circuit TP1 Pin 5 FCS. IN (focus in) and Pin 4 GND. • Observe the waveform output by TP1 Pin 6 FCS. ERR (focus error) when pressing the TRACK FWD (⏭) key.

9.6 RÉGLAGE

Les éléments à régler pour cette unité sont indiqués ci-dessous. Les réglages doivent être effectués dans l'ordre où ils sont indiqués. L'opération d'ouverture/fermeture (OPEN/CLOSE) pour le plateau de disc 2 ne pouvant pas être effectuée pendant le mode d'essai, utiliser le plateau 1 pour les réglages.

- **Eléments à régler et à contrôler**

1. Réglage du décalage de suivi de piste, du décalage de focalisation et du décalage RF
2. Réglage du niveau RF
3. Contrôle de la puissance de la diode laser (LD)
4. Contrôle du verrouillage de focalisation et du verrouillage de moyeu
5. Réglage du réseau
6. Réglage de l'équilibrage du suivi de piste
7. Réglage tangentiel
8. Réglage du gain de focalisation
9. Réglage du gain de suivi de piste
10. Réglage de la fréquence continuelle du VCO
11. Vérification de la caractéristique S (erreur de focalisation)

- **Matériel de mesure**

1. Oscilloscope double trace
2. Appareil de mesure pour puissance laser
3. Disc d'essai (YEDS-7)
4. Filtre de réglage pour gain de boucle
5. Générateur de signal
6. Fréquencemètre
7. Outillage général divers

- **Mode d'essai**

Méthodes de réglage et d'annulation du mode d'essai

(1) Pour régler le mode d'essai, activer (ON) le contacteur d'alimentation (S707) tout en maintenant enfoncé le contacteur de mode d'essai (S1).

(2) Le mode d'essai est annulé en désactivant (OFF) le contacteur d'alimentation.

Les fonctions des touches dans le mode d'essai sont indiquées dans le tableau 9-1.

- **Résistances variables (VR) de réglage et leurs noms**

VR1:	Puissance laser
VR2:	Décalage RF (RF. OFS)
VR3:	Gain de focalisation (FCS. GAN)
VR4:	Gain de suivi de piste (TRK. GAN)
VR5:	Equilibrage de suivi de piste (TRK. BAL)
VR6:	Décalage de focalisation (FCS. OFS)
VR7:	Décalage de suivi de piste (TRK. OFS)
VR8:	Réglage du VCO (VCO. ADJ)

Points de réglage

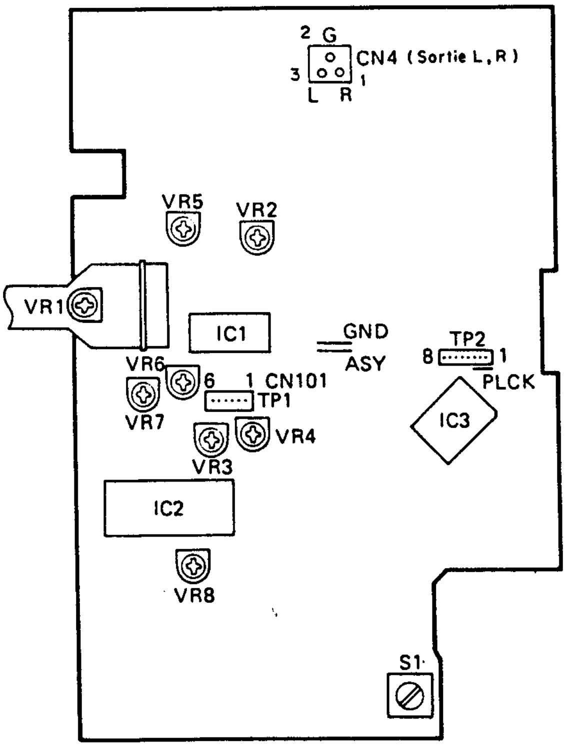
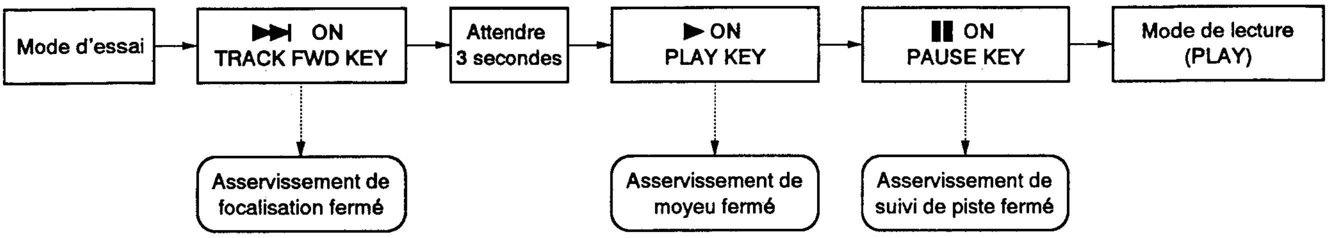


Fig. 9-1.

Dans le mode d'essai, les circuits d'asservissement sont fermés et ouverts individuellement. Par conséquent, les circuits d'asservissement doivent être fermés l'un après l'autre (séquentiellement) afin de régler l'unité dans le mode de lecture (PLAY) normal. Noter également que pendant le mode d'essai, l'unité ne passe pas dans le mode de lecture (PLAY) lorsque seule la touche de PAUSE (❚❚) est enfoncée.

Exemple: Commutation du mode d'arrêt (STOP) au mode de lecture (PLAY).

* Dans le mode d'essai, les circuits d'asservissement doivent être fermés séquentiellement.

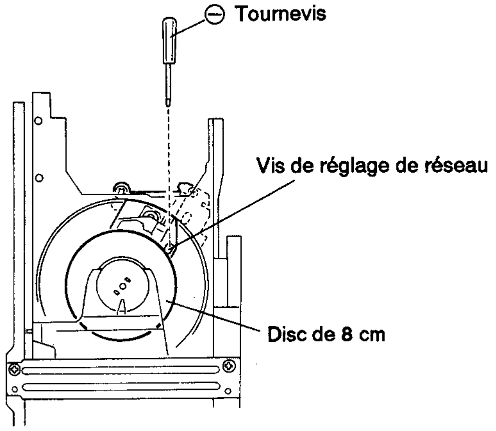
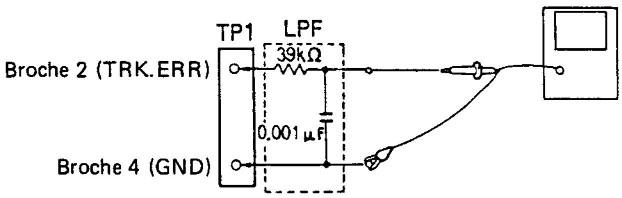


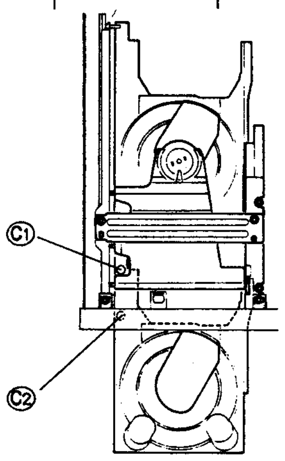
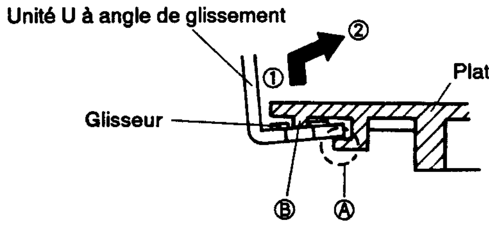
- **Fonctions des touches dans le mode d'essai**

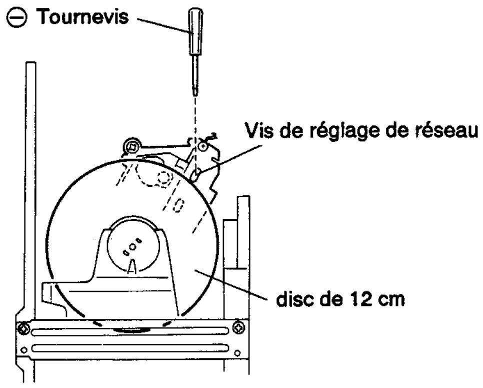
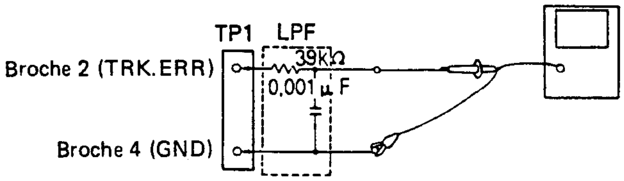
Symbole	Désignation de touche	Fonction pendant le mode d'essai	Description
▶▶|	TRACK FWD	Asservissement de focalisation fermé	Fait s'allumer la diode laser et soulève/abaisse l'actionneur de focalisation pour fermer l'asservissement de focalisation. Après la fermeture du plateau de disc 1, le plateau est amené sur la position de lecture (PLAY).
▶	PLAY	Asservissement de moyeu fermé	Ferme l'asservissement dans le mode CLV–A après le démarrage du moteur de moyeu.
❚❚	PAUSE	Asservissement de suivi de piste fermé/ouvert	Réalise l'opération de bascule: ferme l'asservissement de suivi de piste et règle sur le mode de lecture (PLAY) lorsque la touche est enfoncée (si les asservissements de focalisation et de moyeu sont fermés) et le voyant de PAUSE s'allume; ouvre l'asservissement de suivi de piste lorsqu'elle est de nouveau enfoncée.
◀◀	MANUAL SEARCH REV	Retour du chariot (mouvement vers l'intérieur)	Déplace le chariot rapidement (3 cm/s.) vers le centre du disc. Comme il n'y a pas de mécanisme de sécurité pour arrêter le chariot, relâcher la touche lorsque le chariot atteint la piste la plus intérieure.
▶▶	MANUAL SEARCH FWD	Avance du chariot (mouvement vers l'extérieur)	Déplace le chariot rapidement (3 cm/s.) vers le bord extérieur du disc. Comme il n'y a pas de mécanisme de sécurité pour arrêter le chariot, relâcher la touche lorsque le chariot atteint la piste la plus extérieure.
■	STOP	Arrêt	Arrête tous les asservissements et ramène le système à son état initial.
▲	OPEN/CLOSE Disc I	Ouverture/fermeture (plateau de disc)	Ouvre et ferme le plateau de disc. Le capteur ne revient cependant pas à sa position de repos lors de l'ouverture et il reste stationnaire lors de la fermeture du plateau.

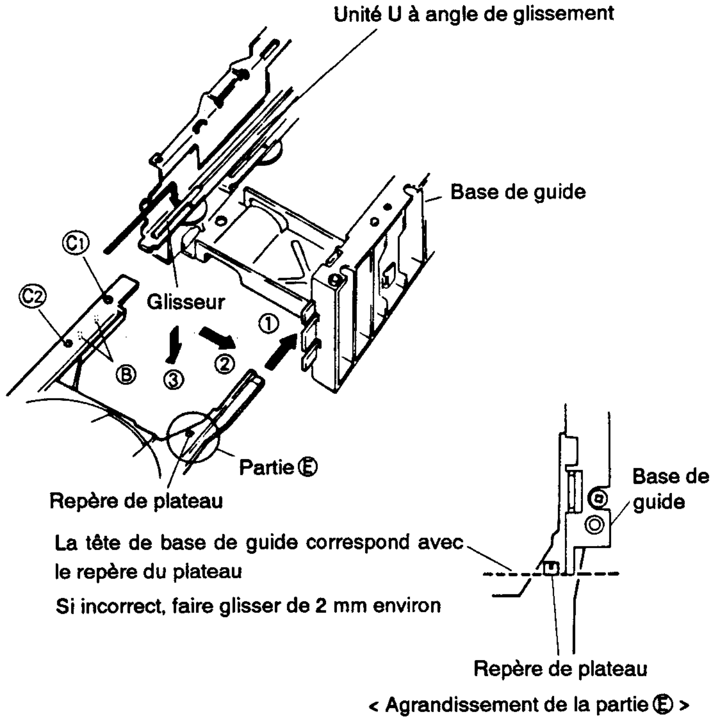
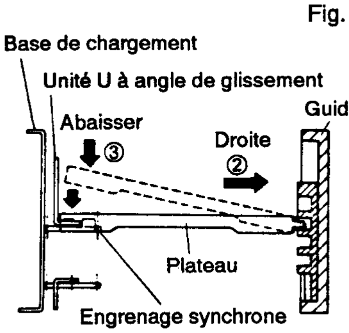
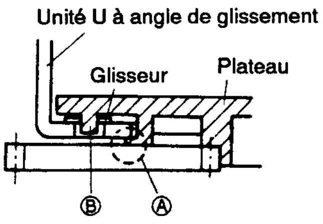
Tableau 9–1.

Etape No.	Réglage de l'oscilloscope		Points d'essai	Points de réglage	Points de contrôle/ spécifications de réglage	Méthode de réglage
	V	H				
1.	**REGLAGE DU DECALAGE DE SUIVI DE PISTE, DU DECALAGE DE FOCALISATION ET DU DECALAGE RF**					
						• Régler sur le mode d'essai (voir page 59).
				VR5 (TRK. BAL)	Décalage de suivi de piste 45°	• Tourner VR5 TRK. BAL (équilibrage de suivi de piste), dans le sens inverse des aiguilles d'une montre, d'environ 45° depuis la position centrale.
			TP1 Broche 2 (TRK. ERR)	VR7 (TRK. OFS)	0V ± 50 mV	• Régler VR7 TRK. OFS (décalage de suivi de piste) de sorte que la tension à la broche 2 de TP1 TRK. ERR (erreur de suivi de piste) devienne 0V ± 50 mV.
			TP1 Broche 6 (FCS. ERR)	VR6 (FCS. OFS)	Décalage de focalisation 0V ± 50 mV	• Régler VR6 FCS. OFS (décalage de focalisation) de sorte que la tension à la broche 6 de TP1 FCS. ERR (erreur de focalisation) devienne 0V ± 50 mV.
			TP1 Broche 1 (RF output)	VR2 (RF. OFS)	Décalage RF 100 mV ± 50 mV	• Régler VR2 RF. OFS (décalage RF) de sorte que la tension de sortie RF à la broche 1 de TP1 devienne 100 mV ± 50 mV.
						Note: Après avoir effectué le réglage du décalage de suivi de piste, toujours effectuer "6. REGLAGE DE L'EQUILIBRAGE DE SUIVI DE PISTE".
2.	**REGLAGE DU NIVEAU RF**					
						• Régler sur le mode d'essai (voir page 59).
			TP1 Broche 1 (RF output)	VR1 (puissance laser)		• Reproduire le disc d'essai, raccorder l'oscilloscope à la broche 1 de TP1 (sortie RF) et mesurer la tension c–c de la forme d'onde RF.
					$1{,}5V\,^{+0{,}2V}_{-0V}$	• Régler de sorte que la tension devienne $1{,}5V\,^{+0{,}2V}_{-0V}$.
3.	**CONTROLE DE LA PUISSANCE DE LA DIODE LASER (LD)**					
						• Régler sur le mode d'essai (voir page 59). • Appuyer sur la touche d'avance de piste (TRACK FWD) (⏭) pour faire s'allumer la diode laser (LD).
					Moins de 0,13 mW	• Placer le détecteur de l'appareil de mesure pour puissance laser directement au-dessus de l'objectif et vérifier que la puissance de sortie de la diode laser ne dépasse pas 0,13 mW.

Etape No.	Réglage de l'oscilloscope		Points d'essai	Points de réglage	Points de contrôle/ spécifications de réglage	Méthode de réglage
	V	H				
4.	**CONTROLE DU VERROUILLAGE DE FOCALISATION ET DU VERROUILLAGE DE MOYEU**					
	V 0,5V/div.	H 100 ms. /div.	TP1 Broche 1 (sortie RF)		Présence d'une sortie RF Rotation normale (sens des aiguilles d'une montre)	• Mettre en place le disc d'essai. • Régler sur le mode d'essai (voir page 59). • Appuyer sur la touche de recherche manuelle en avant (MANUAL SEARCH FWD) (▶▶) pour amener le capteur près du centre du disc. • Observer la sortie de la broche 1 de TP1 (sortie RF) sur l'oscilloscope. Vérifier que le signal RF est sorti après avoir appuyé sur la touche d'avance de piste (TRACK FWD) (▶▶|). • Appuyer sur la touche de lecture (PLAY ▶) et vérifier que le disc tourne à une vitesse constante (approx. 30 tr/mn. près du centre du disc) dans le sens normal (sens des aiguilles d'une montre); vérifier que le disc ne tourne pas trop rapidement ou dans le sens inverse des aiguilles d'une montre.
5.	**REGLAGE DU RESEAU (1) (en utilisant un disc de 8 cm)**					
	 Fig. 9-2.  TP1 LPF 39kΩ 0.001µF Broche 2 (TRK.ERR) Broche 4 (GND) Fig. 9-3.					Note: Ce réglage ne peut être effectué qu'en utilisant un disc de 8 cm ayant des microcuvettes sur un diamètre de 75 mm. • Régler sur le mode d'essai (voir page 59). • Mettre en place le disc de 8 cm. Amener le capteur sur la piste la plus extérieure de sorte qu'il soit positionné sur les microcuvettes et que le trou de réglage du réseau du capteur soit visible par le trou dans le mécanisme d'asservissement (voir Fig. 9-2). • Appuyer en séquence sur les touches d'avance de piste (TRACK FWD) (▶▶|) et de lecture (PLAY) (▶) pour fermer l'asservissement de focalisation et l'asservissement de moyeu (ne pas fermer l'asservissement de suivi de piste). • Observer la forme d'onde sortie de la broche 2 de TP1 TRK. ERR (erreur de suivi de piste) sur l'oscilloscope, en insérant un filtre passe-bas de 4 kHz (voir la Fig. 9-3).

Etape No.	Réglage de l'oscilloscope		Points d'essai	Points de réglage	Points de contrôle/ spécifications de réglage	Méthode de réglage
	V	H				
	0,5V/div.	5 ms./div.	TP1 Broche 2 (TRK. ERR)	Réseau Réseau	Point zéro Amplitude maximum	• Insérer un tournevis (–) dans le trou de réglage de réseau et tourner pour trouver le point zéro (voir la Photo 9-1). • Tourner ensuite lentement le tournevis (–) dans le sens inverse des aiguilles d'une montre depuis le point zéro et régler jusqu'à ce que la forme d'onde (signal d'erreur de suivi de piste) atteigne son amplitude maximum (voir la Photo 9-2). Note: Prendre des précautions car l'insertion de force du tournevis (–) fait flotter l'unité du capteur vers le haut. • Vérifier, finalement, qu'il n'y a pas de fluctuation majeure dans la tension c–c du signal d'erreur de suivi de piste (ne pas insérer de filtre de coupure passe–bas 4 kHz) lorsque le capteur est déplacé sur la piste la plus intérieure et lorsque le capteur est déplacé sur la piste la plus extérieure. S'il y a une différence de plus de ± 10%, rerégler en tournant la vis de réglage du réseau jusqu'au point d'amplitude maximum du signal d'erreur de suivi de piste.
5	**REGLAGE DU RESEAU (2) (sans disc de 8 cm)**					
	 Fig. 9–4.  Unité U à angle de glissement ① ② Plateau 1 Glisseur Ⓑ Ⓐ Fig. 9–5.					Effectuer ce réglage lorsqu'un disc de 8 cm n'est pas disponible et que le réglage du réseau (1) ne peut pas être effectué. Déposer le plateau 1 avant d'effectuer ce réglage. Dépose du plateau 1 1. Régler le plateau 1 sur la position ouverture (OPEN) 2. Déposer les vis (C1) et (C2) qui fixent le plateau dans la Fig. 9-4. 3. Déplacer le plateau dans la direction de la flèche de la Fig. 9-5 et en détachant la protubérence Ⓑ du plateau 1, libérer le l'unité en U à angle de glissement du crochet Ⓐ du plateau 1. 4. Retirer le plateau en soulevant légèrement le côté de l'unité en U à angle de glissement.

Etape No.	Réglage de l'oscilloscope		Points d'essai	Points de réglage	Points de contrôle/spécifications de réglage	Méthode de réglage
	V	H				
			 Fig. 9–6.  TP1 LPF Broche 2 (TRK.ERR) 39kΩ 0,001 μ F Broche 4 (GND) Fig. 9 -7.			Note: Ce réglage ne peut être effectué qu'en utilisant un disc ayant des microcuvettes sur un diamètre de 115 mm maximum. Le disc d'essai (YEDS-7) ne peut pas être utilisé. • Régler sur le mode d'essai (voir page 59). • Mettre en place un disc. Amener le capteur sur la piste la plus extérieure de sorte qu'il soit positionné sur les microcuvettes et que le trou de réglage du réseau du capteur soit visible par le trou dans le mécanisme d'asservissement (voir Fig. 9–6). • Appuyer en séquence sur les touches d'avance de piste (TRACK FWD) (⏭) et de lecture (PLAY) (▶) pour fermer l'asservissement de focalisation et l'asservissement de moyeu (ne pas fermer l'asservissement de suivi de piste). • Observer la forme d'onde sortie de la broche 2 de TP1 TRK. ERR (erreur de suivi de piste) sur l'oscilloscope, en insérant un filtre passe–bas de 4 kHz (voir la Fig. 9 -7).
	0,5V/div.	5 ms./div.	TP1 Broche 2 (TRK.ERR)	Réseau	Point zéro	• Insérer un tournevis (–) dans le trou de réglage de réseau et tourner pour trouver le point zéro (voir la Photo 19 -1).
				Réseau	Amplitude maximum	• Tourner ensuite lentement le tournevis (–) dans le sens inverse des aiguilles d'une montre depuis le point zéro et régler jusqu'à ce que la forme d'onde (signal d'erreur de suivi de piste) atteigne son amplitude maximum (voir la Photo 9 -2). Note: Prendre des précautions car l'insertion de force du tournevis (–) fait flotter l'unité du capteur vers le haut. • Vérifier, finalement, qu'il n'y a pas de fluctuation majeure dans la tension c–c du signal d'erreur de suivi de piste (ne pas insérer de filtre de coupure passe–bas 4 kHz) lorsque le capteur est déplacé sur la piste la plus intérieure et lorsque le capteur est déplacé sur la piste la plus extérieure. S'il y a une différence de plus de ± 10%, rerégler en tournant la vis de réglage du réseau jusqu'au point d'amplitude maximum du signal d'erreur de suivi de piste.

Etape No.	Réglage de l'oscilloscope		Points d'essai	Points de réglage	Points de contrôle/ spécifications de réglage	Méthode de réglage
	V	H				
	 Unité U à angle de glissement Base de guide Ⓒ1 Ⓒ2 Glisseur ① ② ③ Ⓑ Partie Ⓔ Repère de plateau Base de guide Repère de plateau La tête de base de guide correspond avec le repère du plateau Si incorrect, faire glisser de 2 mm environ < Agrandissement de la partie Ⓔ > Fig. 9–8.  Base de chargement Unité U à angle de glissement Abaisser ③ Guide Droite ② Plateau Engrenage synchrone Fig. 9–9.  Unité U à angle de glissement Glisseur Plateau Ⓑ Ⓐ Fig. 9–10.					Après avoir terminé les réglages, remettre le plateau de 1 de la manière suivante. Déposer le panneau frontal précédemment monté, qui gêne la mise en place du plateau de 1. 1. Régler l'unité ensemble en U à angle de glissement sur la position la plus avancée (où l'ouverture du plateau est totale). 2. Régler le glisseur sur la position la plus avancée comme indiqué sur la Fig. 9-8. 3. Comme indiqué par la ligne en pointillés de la Fig. 9-9, insérer l'oblique de plateau 1 à la position où les trous de montage du glisseur et du plateau 1 correspondent. (S'assurer que le glisseur ne revient pas en arrière). 4. Abaisser le plateau 1 tout en le tirant sur la droite (vers le guide). Procéder ainsi tout en soutenant le glisseur d'un doigt. 5. Régler la position du plateau 1 afin que le crochet Ⓐ et la protubérance Ⓑ soient fixés correctement, comme indiqué sur la Fig. 10-10. De plus, s'assurer que l'engrenage synchrone s'engage bien avec l'engrenage du plateau 1. 6. S'assurer que les trous de montage du glisseur sont bien positionnés sur les trous de vis du plateau 1 et resserrer la vis Ⓒ1, puis la vis Ⓒ2. 7. Après avoir terminé le montage du plateau 1, ouvrir complètement le plateau 1 et vérifier si la position mutuelle indiquée sur l'illustration agrandie de la partie Ⓔ est bien correcte. Sinon, les réglages doivent être recommencés depuis le début.

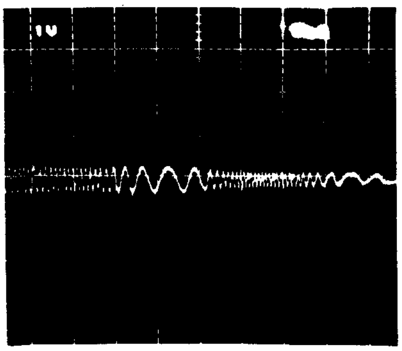


Photo 9–1. Forme d'onde de point zéro

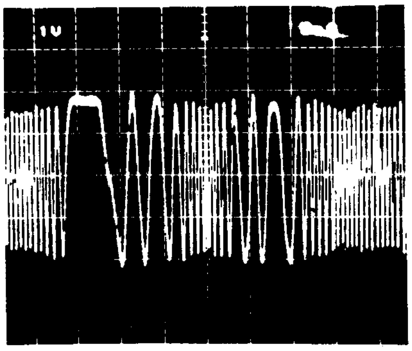


Photo 9–2. Amplitude maximum

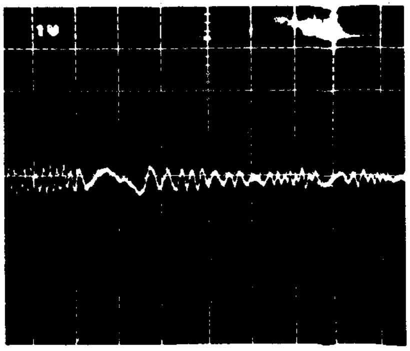


Photo 9–3. Forme d'onde sans point zéro

Etape No.	Réglage de l'oscilloscope		Points d'essai	Points de réglage	Points de contrôle/ spécifications de réglage	Méthode de réglage
	V	H				
6.	**REGLAGE DE L'EQUILIBRAGE DU SUIVI DE PISTE**					
	0,5V/div.	5 ms./div.	TP1 Broche 2 (TRK.ERR)	VR5 (TRK.BAL)		• Mettre en place le disc d'essai. • Régler sur le mode d'essai (voir page 59). • Appuyer sur la touche de recherche manuelle en avant (MANUAL SEARCH FWD) (▶▶) pour positionner le chariot près du centre du disc. • Appuyer sur la touche d'avance de piste (TRACK FWD) (▶▶|) puis sur la touche de lecture (PLAY) (▶) pour faire tourner le disc. • Observer la forme d'onde sortie par la broche 2 de TP1 TRK. ERR (erreur de suivi de piste) sur l'oscilloscope et régler VR5 TRK. BAL (équilibrage du suivi de piste) de sorte que la composante CC disparaisse du signal d'erreur de suivi de piste.

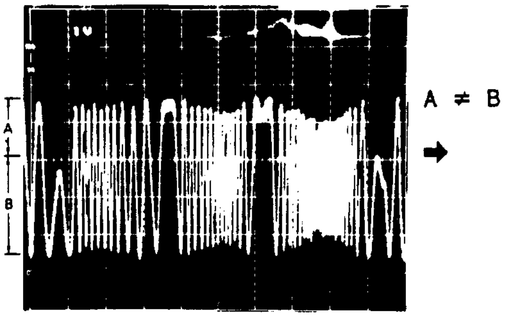


Photo 9-4. Avec composante CC

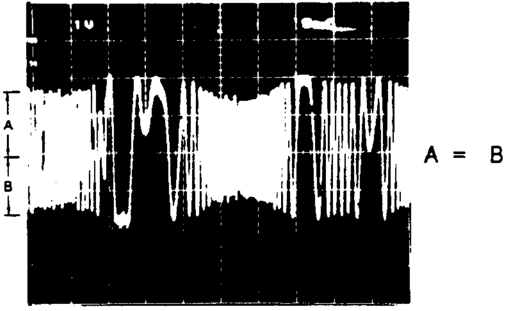
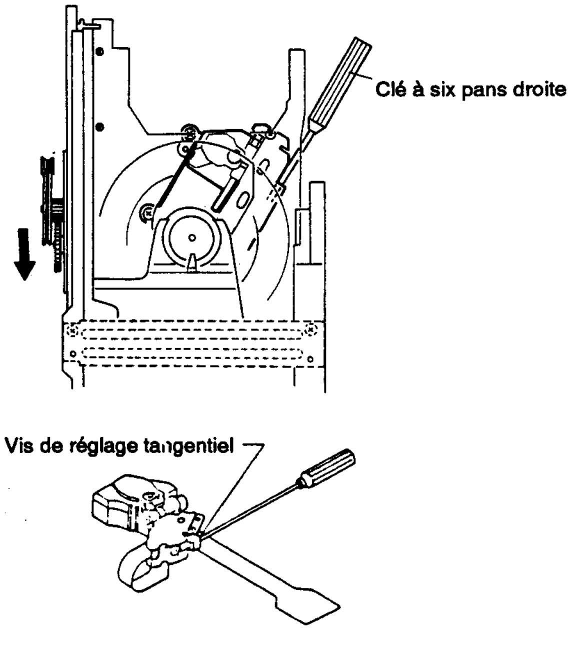
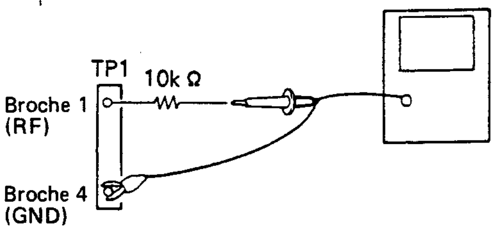


Photo 9-5. Sans composante CC

Etape No.		Méthode de réglage
7.	**REGLAGE TANGENTIEL**	
	 Fig. 9-11.	• Régler sur le mode d'essai (voir page 59). • Ouvrir le plateau 1 et mettre en place le disc. • Fermer le plateau 1. • Appuyer sur la touche de recherche manuelle en avant (MANUAL SEARCH FWD) (▶▶) pour positionner le capteur sur la piste la plus extérieure. • Tourner à la main la poulie d'engrenage dans le sens indiqué par la flèche et déplacer le plateau 2 vers le haut de sorte que la section de la vis de réglage tangentiel devienne visible. • Insérer une clé à six pans dans la section de la vis de réglage tangentiel depuis l'oblique droite á l'arrière du mécanisme. • Appuyer sur la touche de recherche manuelle en arrière (MANUAL SEARCH REV) (◀◀) pour positionner le capteur vers le milieu des pistes. • Appuyer sur la touche d'avance de piste (TRACK FWD) (▶▶|), la touche de lecture (PLAY) (▶) et la touche de PAUSE (▮▮), dans cet ordre, pour fermer tous les asservissements (le voyant de pause s'allume).

Etape No.	Réglage de l'oscilloscope		Points d'essai	Points de réglage	Points de contrôle/ spécifications de réglage	Méthode de réglage
	V	H				
		200 ns./div.	TP1 Broche 1 (sortie RF)	Vis de réglage tangentiel	Mire la plus nette possible	• Observer la forme d'onde sortie par la broche 1 de TP1 (sortie RF) sur l'oscilloscope et ajuster la vis de réglage tangentiel afin d'obtenir la mire la plus nette possible. • Le point d'ajustement correct se situe à mi-chemin entre les deux points où la mire devient floue lorsque la vis de réglage tangentiel est tournée dans le sens des aiguilles d'une montre puis dans le sens inverse. Lorsque toute la forme d'onde devient claire, se concentrer sur la netteté des lignes fines composant la forme de diamant au centre de la mire (voir Photo 9 -6). Ajuster jusqu'à ce que la forme de diamant soit constituée de fines lignes séparées.  Fig. 9 -12. Note: Utiliser une clé à six pans pour maintenir le capteur en position élevée pendant que ce réglage est effectué.

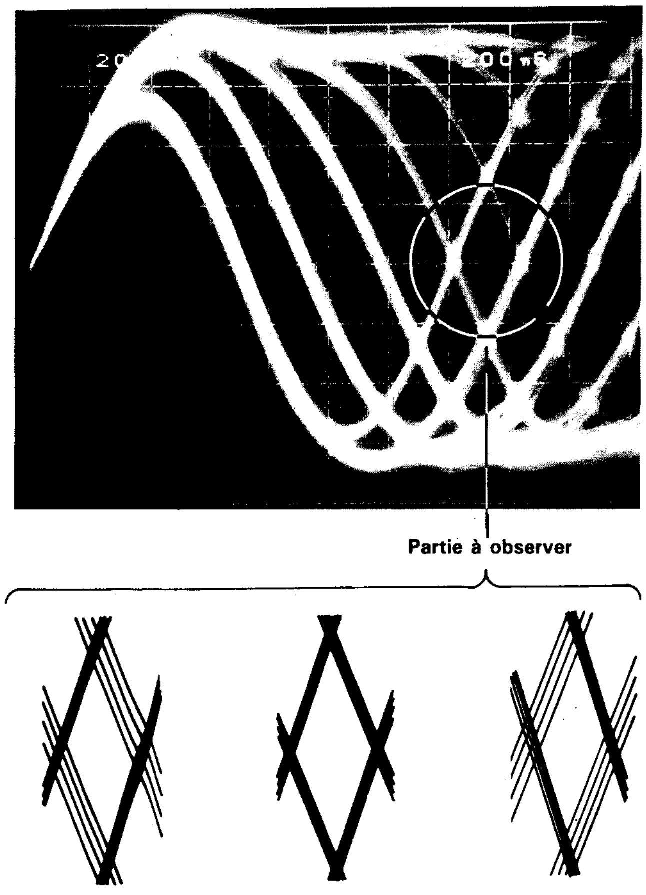


Photo 9-6.

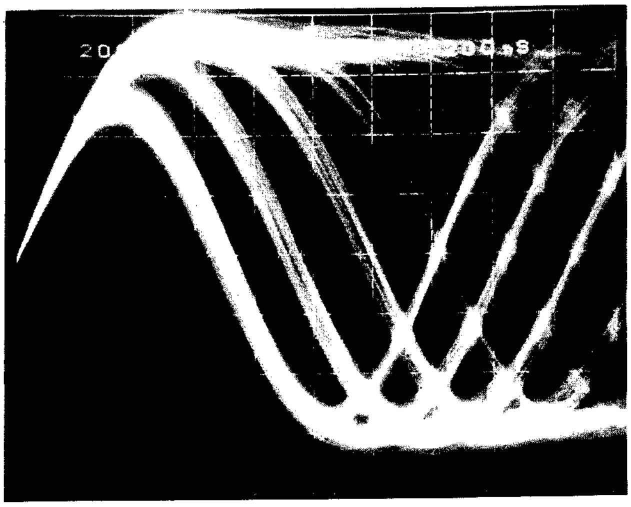


Photo 9-7.

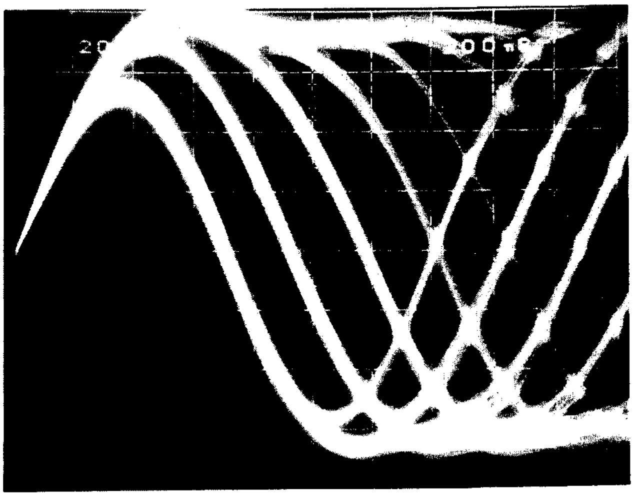


Photo 9-8.

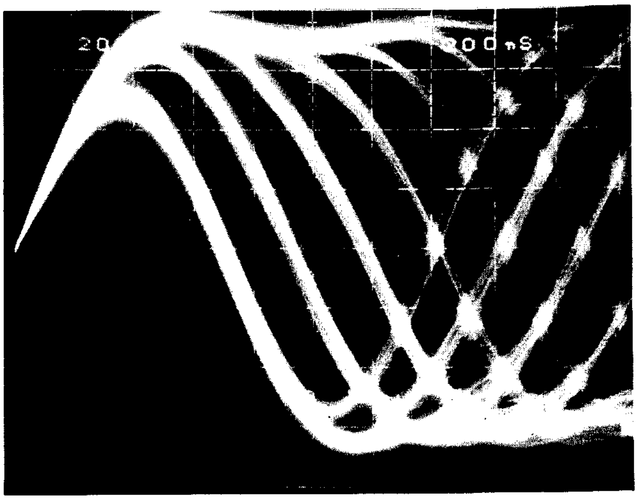
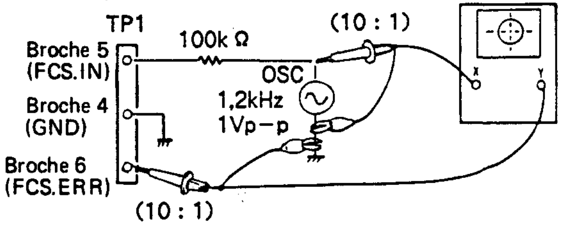
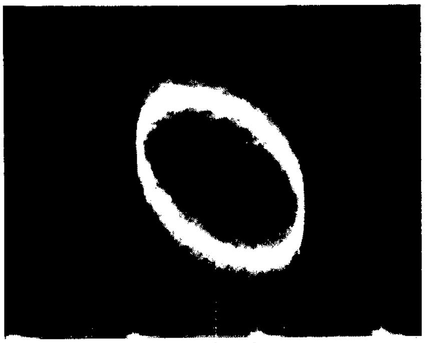


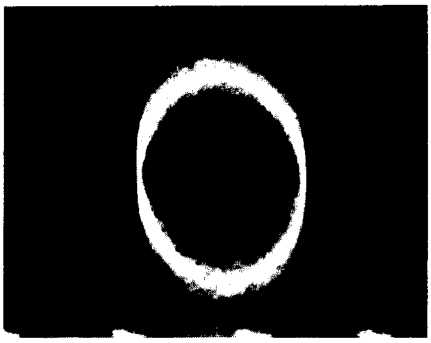
Photo 9-9.

Etape No.	Réglage de l'oscilloscope		Points d'essai	Points de réglage	Points de contrôle/ spécifications de réglage	Méthode de réglage
	V	H				
8.	**REGLAGE DU GAIN DE FOCALISATION**					
	CH1 (X), CH2 (Y) 20 mV/div. 5 mV/div. (sonde: 10:1)		Axe X TP1 Broche 5 (FCS. IN) Axe Y TP1 Broche 6 (FCS. ERR)	VR3 (FCS. GAN)	Différence de phase de 90°	• L'alimentation de l'oscillateur étant coupée (OFF), raccorder l'oscilloscope et l'oscillateur comme indiqué sur la Fig. 9-13. • Régler sur le mode de lecture (PLAY) normal. • Mettre l'oscillateur sous tension (ON) et le régler pour sortir un signal de 1,2 kHz 1 Vc-c. Note: Certains oscillateurs déchargent une tension CC lorsque l'alimentation est activée. Dans ce cas, il est recommandé de raccorder l'oscillateur après qu'il a été mis sous tension. • Régler VR3 FCS. GAN (gain de focalisation) de sorte que les figures Lissajous forment un cercle horizontal sur l'oscilloscope (différence de phase de 90°).  TP1 Broche 5 (FCS.IN) Broche 4 (GND) Broche 6 (FCS.ERR) 100k Ω (10 : 1) OSC 1,2kHz 1Vp-p (10 : 1) X Y Fig. 9-13.



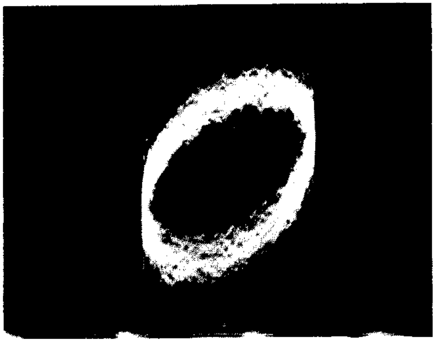
Gain élevé

Photo 9-10.



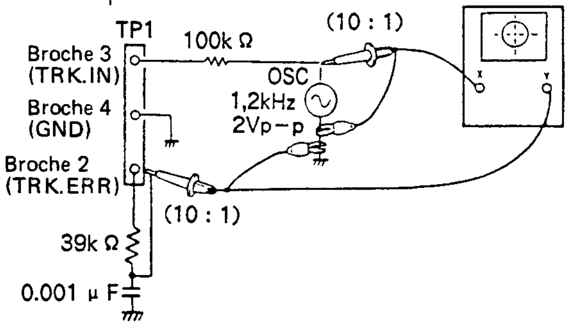
Gain optimum

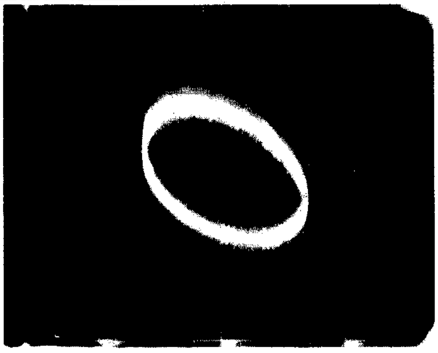
Photo 9-11.

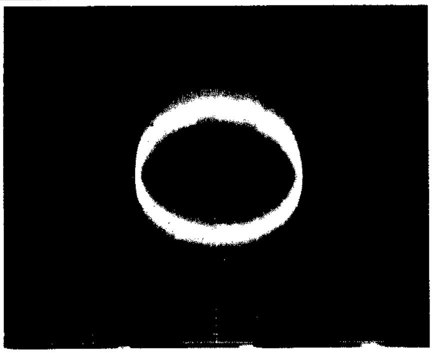


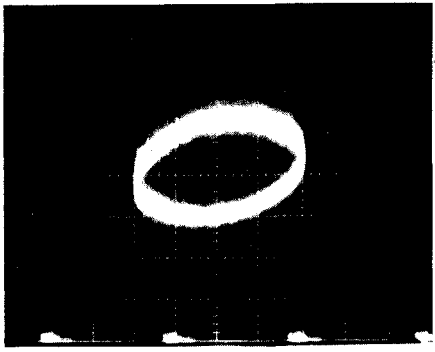
Gain bas

Photo 9-12.

Etape No.	Réglage de l'oscilloscope		Points d'essai	Points de réglage	Points de contrôle/ spécifications de réglage	Méthode de réglage
	V	H				
9.	**REGLAGE DU GAIN DE SUIVI DE PISTE**					
	CH1 (X), CH2 (Y) 50 mV/div. 5 mV/div. (sonde: 10:1)		Axe X TP1 Broche 3 (TRK. IN) Axe Y TP1 Broche 2 (TRK. OUT)	VR4 (TRK. GAN)	Différence de phase de 90°	• L'alimentation de l'oscillateur étant coupée (OFF), raccorder l'oscilloscope et l'oscillateur comme indiqué sur la Fig. 9-14. • Régler sur le mode de lecture (PLAY) normal. • Mettre l'oscillateur sous tension (ON) et le régler pour sortir un signal de 1,2 kHz 2 Vc-c. Note: Certains oscillateurs déchargent une tension CC lorsque l'alimentation est activée. Dans ce cas, il est recommandé de raccorder l'oscillateur après qu'il a été mis sous tension. • Régler VR4 TRK.GAN (gain de suivi de piste) de sorte que les figures Lissajous forment un cercle horizontal sur l'oscilloscope (différence de phase de 90°).  TP1 Broche 3 (TRK.IN) 100k Ω (10 : 1) OSC 1,2kHz 2Vp−p X Y Broche 4 (GND) Broche 2 (TRK.ERR) (10 : 1) 39k Ω 0.001 μF Fig. 9-14.


Gain élevé
Photo 9-13.


Gain optimum
Photo 9-14.


Gain bas
Photo 9-15.

Etape No.	Réglage de l'oscilloscope		Points d'essai	Points de réglage	Points de contrôle/ spécifications de réglage	Méthode de réglage
	V	H				
10.	**REGLAGE DE LA FREQUENCE CONTINUELLE DU VCO**					
			TP2 Broche 2 (PLCK)	VR8 (VCO. ADJ)	4,275 ± 0,025 MHz	• Régler sur le mode d'essai (voir page 59). • Court–circuiter les ponts ASY et GND avec un tournevis (–) ou un outil similaire (voir Fig. 9–1). • Raccorder un fréquencemètre capable de mesurer des fréquences de 10 MHz et plus au pont PLCK. • Régler VR8 VCO. ADJ (réglage continuel du VCO) de sorte que l'indication du fréquencemètre devienne 4,275 ± 0,025 MHz.
11.	**VERIFICATION DE LA CARACTERISTIQUE S (ERREUR DE FOCALISATION)**					
			TP1 Broche 6 (FCS. ERR)			• Régler sur le mode d'essai (voir page 59). • Court-circuiter les broches de TP1 FCS et la broche 4 GND. • Observer la forme d'onde sortie par la broche 6 de TP1 FCS. ERR (erreur de focalisation) lorsque la touche d'avance de piste (TRACK FWD) (▶▶|) est enfoncée.

9.6 AJUSTE

La lista de abajo muestra los ítems de ajuste de esta unidad. Los ajustes deben efectuarse en el orden indicado. Dado que la operación de abertura/cerrado de la bandeja de disco 2 no puede efectuarse en el modo de prueba, emplee la bandeja 1 para el ajuste.

• Items de ajuste y confirmación

1. Ajuste de error de seguimiento, enfoque y RF
2. Ajuste de nivel de RF
3. Confirmación de potencia del diodo laser (LD)
4. Confirmación de enclavamiento de enfoque y eje
5. Ajuste de retículo
6. Ajuste de seguimiento
7. Ajuste tangencial
8. Ajuste de ganancia de enfoque
9. Ajuste de ganancia de seguimiento
10. Ajuste de frecuencia propia del oscilador controlado por tensión
11. Confirmación de carácter S (error de enfoque)

• Equipo de medición

1. Osciloscopio de doble trazo
2. Medidor de potencia de laser
3. Disco de prueba (YEDS-7)
4. Filtro de ajuste de ganancia de bucle
5. Generador de señales
6. Contador de frecuencia
7. Herramientas de uso general

• Modo de prueba

Cómo establecer y cancelar el modo de prueba

(1) Para establecer el modo de prueba, coloque el interruptor de encendido (S707) en ON mientras mantiene el interruptor de modo de prueba (S1) presionado.

(2) Para cancelar el modo de prueba, coloque el interruptor de encendido en OFF.

Las funciones de las teclas en el modo de prueba están indicadas en la tabla **9-1**.

• Resistores variables (VR) de ajuste y sus nombres

VR1: Potencia de laser
VR2: Error de RF (RF. OFS)
VR3: Ganancia de enfoque (FCS. GAN)
VR4: Ganancia de seguimiento (TRK. GAN)
VR5: Equilibrio de seguimiento (TRK. BAL)
VR6: Error de enfoque (FCS. OFS)
VR7: Error de seguimiento (TRK. OFS)
VR8: Frecuencia propia de oscilador controlado por tensión (VCO. ADJ)

Puntos de ajuste

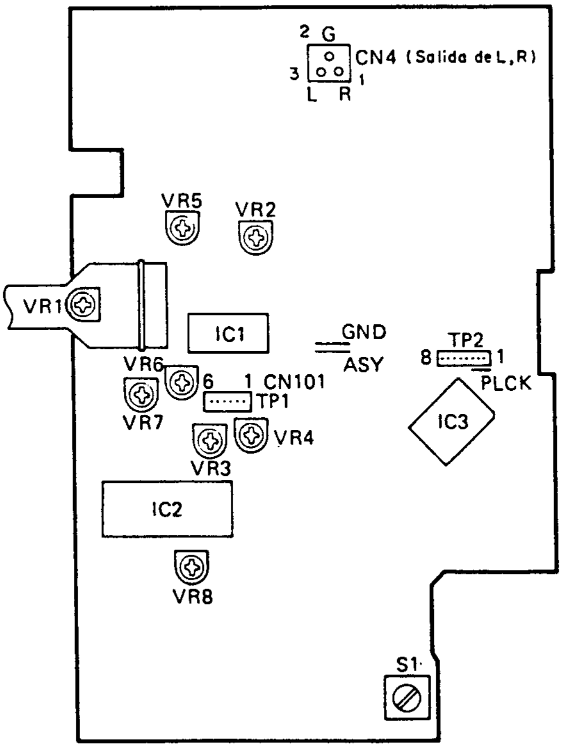
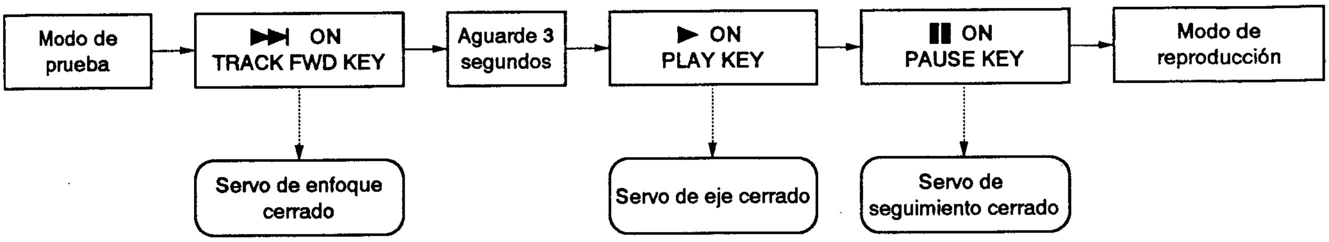


Fig. 9-1.

En el modo de prueba, los servos se abren y cierran independientemente. Por lo tanto, deben cerrarse uno a la vez (consecutivamente) para que la unidad permanezca en el modo de reproducción normal. Advierta también que en el modo de prueba la unidad no entrará en el modo de reproducción si se presiona solamente la tecla de pausa (❚❚).

Ejemplo: Cambiando del modo de parada al de reproducción

* En el modo de prueba, los servos deben activarse en forma consecutiva.

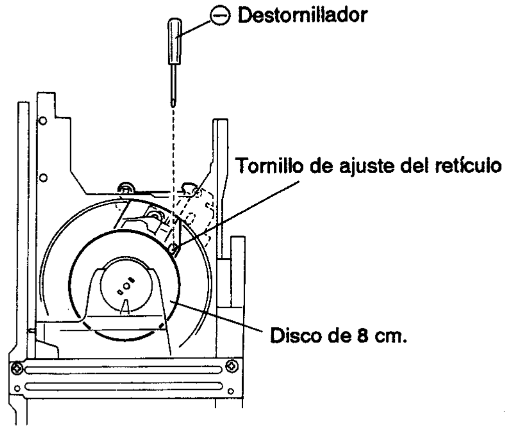
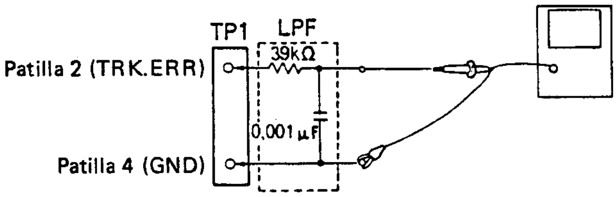


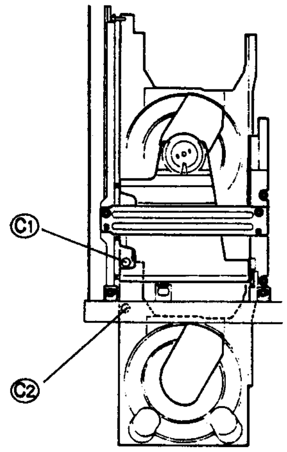
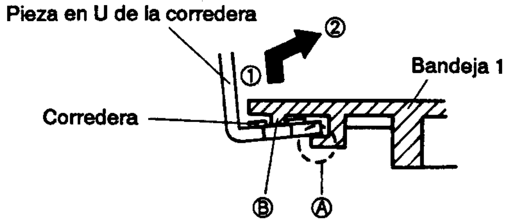
- **Funciones de las teclas en el modo de prueba**

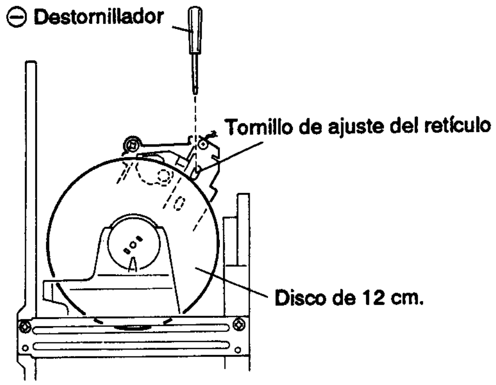
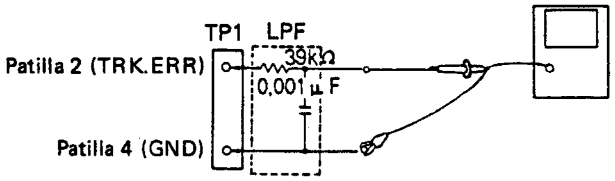
Símbolo	Nombre de la tecla	Función en el modo de prueba	Descripción
▶▶|	TRACK FWD	Cerrar el servo de enfoque	Enciende el diodo laser y levanta/baja el actuador de enfoque para cerrar el servo de enfoque. Después de cerrar la bandeja de disco 1, la bandeja se mueve a la posición de reproducción.
▶	PLAY	Cerrar el servo de eje	Cierra el servo en el modo CLV–A después de arrancar el motor de eje.
❚❚	PAUSE	Abrir/cerrar el servo de seguimiento	Efectúa una operación de conexión oscilante: Cierra el servo de seguimiento y establece el modo de reproducción cuando se la presiona una vez (siempre y cuando los servos de enfoque y eje estén cerrados), iluminándose al mismo tiempo el indicador PAUSE, y abre el servo de seguimiento cuando se la presiona nuevamente.
◀◀	MANUAL SEARCH REV	Transportar el carro hacia el centro	Mueve el carro rápidamente (3 cm/s) hacia el centro del disco. Dado que no hay un sistema de seguridad para detener el carro, suelte la tecla cuando el carro llegue a la última pista del disco.
▶▶	MANUAL SEARCH FWD	Transportar el carro hacia afuera	Mueve el carro rápidamente (3 cm/s) hacia el borde exterior del disco. Dado que no hay un sistema de seguridad para detener el carro, suelte la tecla cuando éste llegue al borde exterior del disco.
■	STOP	Parada	Detiene todos los servos y vuelve el sistema a su estado inicial.
▲	OPEN/CLOSE Disc I	Abrir/cerrar la bandeja de disco	Abre y cierra la bandeja de disco. El captador no vuelve a la posición de reposo al abrir la bandeja, y permanece quieto al cerrarla.

Tabla 9–1.

Paso N°	Ajuste del osciloscopio		Puntos de confirmación	Puntos de ajuste	Items de confirmación/ Especificaciones de ajuste	Procedimiento de ajuste
	V	H				
1	**AJUSTE DE ERROR DE SEGUIMIENTO, ENFOQUE Y RF**					
						• Establezca el modo de prueba (vea la página 72).
				VR5 (TRK. BAL)	Error de seguimiento 45°	• Gire VR5 TRK. BAL (equilibrio de seguimiento) en sentido antihorario a unos 45° de la posición central.
			Patilla 2 de TP1 1 (TRK. ERR)	VR7 (TRK. OFS)	0V ± 50 mV	• Ajuste VR7 TRK. OFS (error de seguimiento) de modo que la tensión de error de seguimiento (TRK. ERR) en la patilla 2 de TP1 sea 0V ± 50 mV.
			Patilla 6 de TP1 1 (FCS. ERR)	VR6 (FCS. OFS)	Error de enfoque 0V ± 50 mV	• Ajuste VR6 FCS. OFS (error de enfoque) de modo que la tensión de error de enfoque (FCS. ERR) en la patilla 6 de TP1 sea 0V ± 50 mV.
			Patilla 1 de TP1 (RF. output)	VR2 (RF. OFS)	Error de RF 100 mV ± 50 mV	• Ajuste VR2 RF. OFS (error de RF) de modo que la tensión de salida de RF en la patilla 1 de TP1 sea 100 mV ± 50 mV.
						Nota: Después de ajustar el error de seguimiento, no deje de ajustar el equilibrio de seguimiento como se indica en la sección 6.
2	**AJUSTE DE NIVEL DE RF**					
						• Establezca el modo de prueba (vea la página 72).
			Patilla 1 de TP1 (RF output)	VR1 (potencia de laser)		• Reproduzca el disco de prueba, conecte el osciloscopio a la patilla 1 de TP1 (salida de RF) y mida la tensión p-p de la onda de RF.
					$1{,}5V\ ^{+0{,}2V}_{-0V}$	• Ajuste de modo que la tensión sea $1{,}5V\ ^{+0{,}2V}_{-0V}$.
3	**CONFIRMACION DE POTENCIA DE DIODO LASER (LD)**					
						• Establezca el modo de prueba (vea la página 72).
						• Presione la tecla TRACK FWD (⏭) para encender el diodo laser.
					Menor que 0,13 mW	• Coloque el sensor del medidor de potencia de laser exactamente sobre la lente del objetivo y confirme que la potencia de salida del laser no exceda 0,13 mW.

Paso N°	Ajuste del osciloscopio		Puntos de confirmación	Puntos de ajuste	Items de confirmación/ Especificaciones de ajuste	Procedimiento de ajuste
	V	H				
4	**CONFIRMACION DE ENCLAVAMIENTO DE ENFOQUE Y EJE**					
	V 0,5V/div.	H 100 ms /div.	Patilla 1 de TP1 (salida de RF)		Existe salida de RF Rotación normal (en sentido horario)	• Coloque el disco de prueba. • Establezca el modo de prueba (vea la página 72). • Presione la tecla MANUAL SEARCH FWD (▶▶) y mueva el captador hasta cerca del centro del disco. • Observe la salida de la patilla 1 de TP1 en el osciloscopio. Confirme que la señal de RF sea emitida después de presionar la tecla TRACK FWD (▶▶|). • Presione la tecla PLAY (▶) y confirme que el disco gire a velocidad constante (aprox. 30 rpm con el captador cerca del centro del disco) en el sentido normal (horario); asegúrese de que el disco no gire demasiado rápido ni en sentido opuesto.
5	**AJUSTE DE RETICULO (1) (empleando un disco de 8 cm)**					
	 ⊖ Destornillador Tornillo de ajuste del retículo Disco de 8 cm. Fig. 9 –2.  TP1 LPF 39kΩ Patilla 2 (TRK.ERR) 0,001 μF Patilla 4 (GND) Fig. 9 –3.					Nota: Este ajuste sólo puede efectuarse usando un disco de 8 cm con hoyos sobre un diámetro de 75 mm. • Establezca el modo de prueba (vea la página 72). • Coloque el disco de 8 cm. Mueva el captador a la pista exterior, ubicándolo sobre la zona con hoyos de modo que el orificio de ajuste de retículo de captador pueda verse por el orificio del servomecanismo (vea la Fig. 9 -2). • Presione las teclas TRACK FWD (▶▶|) y PLAY (▶) consecutivamente para cerrar los servos de enfoque y eje (no cierre el servo de seguimiento). • Observe la forma de onda emitida por la patilla 2 de TP1 (TRK. ERR, error de seguimiento) en el osciloscopio, insertando un filtro de paso bajo de 4 kHz (vea la Fig. 19–3).

Paso N°	Ajuste del osciloscopio		Puntos de confirmación	Puntos de ajuste	Items de confirmación/ Especificaciones de ajuste	Procedimiento de ajuste
	V	H				
	0,5 V/div.	5 ms/div.	Patilla 2 de TP1 (TRK.ERR)	Retículo Retículo	Punto cero Amplitud máxima	• Inserte un destornillador en el orificio de ajuste del retículo, y gírelo hasta encontrar el punto cero (vea la Foto 9 -1). • A continuación, gire lentamente el destornillador en sentido antihorario a partir del punto cero hasta que la forma de onda (señal de error de seguimiento) adquiera amplitud máxima (vea la Foto 9 -2). Nota: Inserte el destornillador cuidadosamente, pues hacerlo con demasiada fuerza haría levantar la unidad de captador. • Finalmente, confirme que no hayan mayores fluctuaciones en la tensión p–p de la señal de error de seguimiento (sin insertar el filtro de paso bajo de 4 kHz) al mover el captador a la pista interior o a la exterior. Si hubiera una diferencia mayor que ± 10%, repita el ajuste girando el tornillo de ajuste de retículo al punto de amplitud máxima de la señal de error de seguimiento.
5	**AJUSTE DE RETICULO (2) (sin disco de 8 cm)**					
	 Fig. 9–4.  Pieza en U de la corredera ② ① Bandeja 1 Corredera Ⓑ Ⓐ Fig. 9 –5.					Utilice este método cuando no disponga de un disco de 8 cm y el procedimiento de ajuste de retículo (1) no sea posible. Antes de comenzar, extraiga la bandeja 1. • Extracción de la bandeja 1. 1. Poner la bandeja en la posición abierta (OPEN). 2. Sacar los tornillos Ⓒ1 y Ⓒ2 sujetando la bandeja como se ilustra en la Fig. 9 - 4. 3. Mover la bandeja en la dirección de la flecha como se indica en la Fig. 9 –5 y, retirando la parte sobresaliente Ⓑ de la misma, desenganchar la pieza en U del gancho Ⓐ. 4. Tirar de la bandeja levantando ligeramente la pieza en U de la corredera.

Paso N°	Ajuste del osciloscopio		Puntos de confirmación	Puntos de ajuste	Items de confirmación/ Especificaciones de ajuste	Procedimiento de ajuste
	V	H				
			 ⊖ Destornillador Tornillo de ajuste del retículo Disco de 12 cm. Fig. 9-6.			Nota: El disco empleado para este ajuste debe tener hoyos hasta un diámetro de 115 mm. El disco de prueba (YEDS-7) no puede utilizarse. • Establezca el modo de prueba (vea la página 72). • Coloque el disco. Mueva el captador a la pista exterior, ubicándolo sobre la zona con hoyos de modo que el orificio de ajuste de retículo de captador pueda verse por el orificio del servomecanismo (vea la Fig. 9-6). • Presione las teclas TRACK FWD (▶▶|) y PLAY (▶) consecutivamente para cerrar los servos de enfoque y eje (no cierre el servo de seguimiento).
			 TP1 LPF Patilla 2 (TRK.ERR) 39kΩ 0,001µF Patilla 4 (GND) Fig. 9-7.			• Observe la forma de onda emitida por la patilla 2 de TP1 (TRK.ERR, error de seguimiento) en el osciloscopio, insertando un filtro de paso bajo de 4 kHz (vea la Fig. 9-7).
	0,5 V/div.	5 ms/div.	Patilla 2 de TP1 (TRK.ERR)	Retículo	Punto cero	• Inserte un destornillador en el orificio de ajuste del retículo, y gírelo hasta encontrar el punto cero (vea la Foto 9-1).
				Retículo	Amplitud máxima	• A continuación, gire lentamente el destornillador en sentido antihorario a partir del punto cero hasta que la forma de onda (señal de error de seguimiento) adquiera amplitud máxima (vea la Foto 9-2). Nota: Inserte el destornillador cuidadosamente, pues hacerlo con demasiada fuerza haría levantar la unidad de captador. • Finalmente, confirme que no hayan mayores fluctuaciones en la tensión p-p de la señal de error de seguimiento (sin insertar el filtro de paso bajo de 4 kHz) al mover el captador a la pista interior o a la exterior. Si hubiera una diferencia mayor que ± 10%, repita el ajuste girando el tornillo de ajuste de retículo al punto de amplitud máxima de la señal de error de seguimiento.

Paso N°	Ajuste del osciloscopio		Puntos de confirmación	Puntos de ajuste	Items de confirmación/ Especificaciones de ajuste	Procedimiento de ajuste
	V	H				

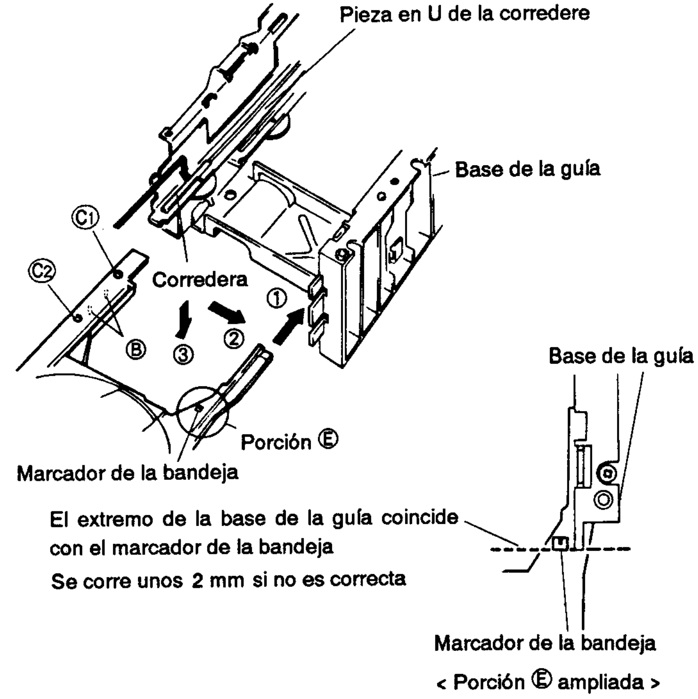

Pieza en U de la corredere
Base de la guía
C1
C2
Corredera
①
②
③
Ⓑ
Porción Ⓔ
Marcador de la bandeja
El extremo de la base de la guía coincide con el marcador de la bandeja
Se corre unos 2 mm si no es correcta
Base de la guía
Marcador de la bandeja
< Porción Ⓔ ampliada >

Fig. 9-8.

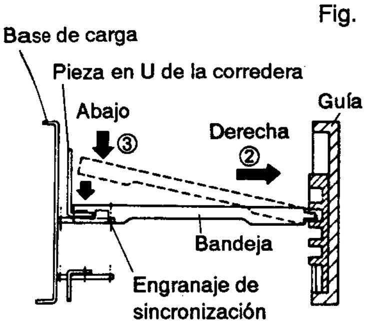

Base de carga
Pieza en U de la corredera
Abajo
③
Derecha
②
Guía
Bandeja
Engranaje de sincronización

Fig. 9-9.

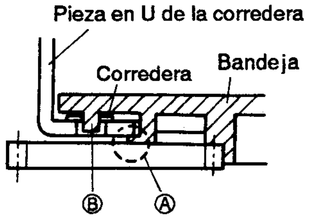

Pieza en U de la corredera
Corredera
Bandeja
Ⓑ
Ⓐ

Fig. 9–10.

Después de terminar todos los ajustes, fijar la bandeja 1 de la manera siguiente:
En primer lugar, desmontar el panel frontal, pues impide el montaje de la bandeja 1.

1. Poner la pieza en U en la posición más avanzada (bandeja totalmente abierta).
2. Poner la corredera en la posición más avanzada como se ilustra en la Fig. 9-8.
3. Como ilustra la linea punteada en la Fig. 9-9, introducir la bandeja hasta la posición en que sus agujeros coincidan con los de la corredera (asegúrese de que la corredera no se deslice hacia atrás).
4. Bajar la bandeja empujándola hacia la derecha (hacia la guía), mientras se sostiene la corredera desde abajo con un dedo.
5. Ajustar la posición de la bandeja de manera que el gancho Ⓐ y la parte sobresaliente Ⓑ queden en la posición correcta según se ilustra en la Fig. 9-10.
   Comprobar que el engranaje de sincronización engrana correctamente con el de la bandeja.
6. Comprobar que los agujeros de montaje de la corredera coinciden con los del centro de la bandeja. Apretar los tornillos C1 y C2 en este orden.
7. Después de terminar el montaje, abrir completamente la bandeja y comprobar que las piezas ocupan las posiciones ilustradas en la porción Ⓔ ampliada.
   Si la posición no es satisfactoria, se debe repetir el ajuste nuevamente desde el comienzo.

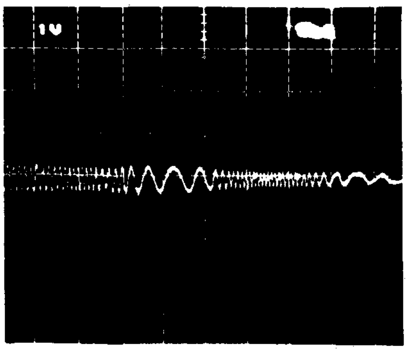


Foto 9-1. Forma de onda de punto cero

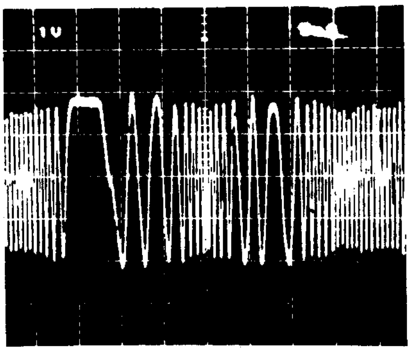


Foto 9-2. Amplitud máxima

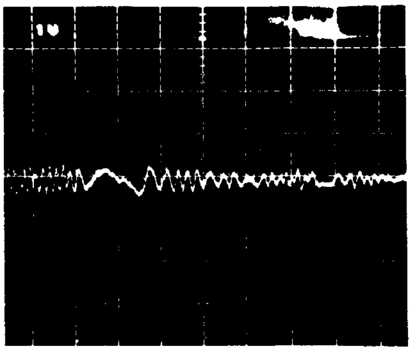


Foto 9-3. Forma de onda fuera del punto cero

Paso N°	Ajuste del osciloscopio		Puntos de confirmación	Puntos de ajuste	Items de confirmación/ Especificaciones de ajuste	Procedimiento de ajuste
	V	H				
6	**AJUSTE DE EQUILIBRIO DE SEGUIMIENTO**					
	0,5 V/div.	5 ms/div.	Patilla 2 de TP1 (TRK. ERR)	VR5 (TRK. BAL)		• Coloque el disco de prueba. • Establezca el modo de prueba (vea la página 72). • Presione la tecla MANUAL SEARCH FWD (▶▶) y mueva el carro hasta cerca del centro del disco. • Presione la tecla TRACK FWD (▶▶|) y después la tecla PLAY (▶) para hacer girar al disco. • Observe la forma de onda emitida por la patilla 2 de TP1, TRK. ERR (error de seguimiento) en el osciloscopio, y ajuste VR5 TRK. BAL (equilibrio de seguimiento) de modo que la componente de CC desaparezca de la señal de error de seguimiento.

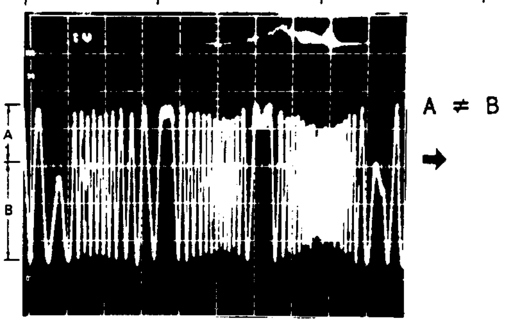


Foto 9-4. Con componente de CC

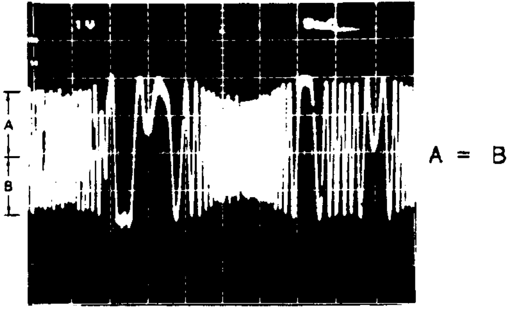


Foto 9-5. Sin componente de CC

Paso N°		Procedimiento de ajuste
7	**AJUSTE TANGENCIAL**	
	Fig. 9-11.	• Establezca el modo de prueba (vea la página 72). • Abra la bandeja 1 y coloque el disco. • Cierre la bandeja 1. • Presione la tecla MANUAL SEARCH FWD (▶▶) y mueva el captador hasta la pista exterior. • Gire la polea engranaje con la mano en el sentido indicado por la flecha, y mueva la bandeja 2 hacia arriba de modo que la sección del tornillo de ajuste tangencial quede a la vista. • Inserte una llave hexagonal en la sección del tornillo de ajuste tangencial desde la derecha y en forma oblicua, a través de la parte posterior del mecanismo. • Presione la tecla MANUAL SEARCH REV (◀◀) para ubicar el captador en un lugar cualquiera en medio del disco. • Presione las teclas TRACK FWD (▶▶|), PLAY (▶) y PAUSE (❚❚) en ese orden para cerrar todos los servos (se encenderá el indicador de pausa).

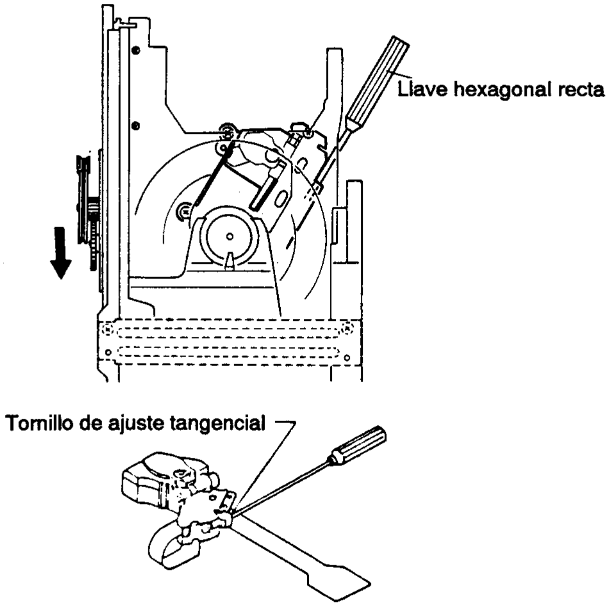
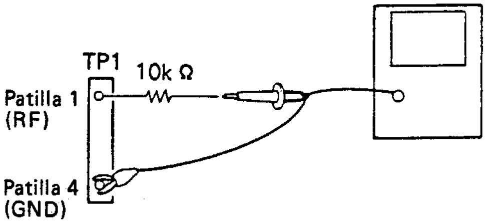


Fig. 9-11.

Paso N°	Ajuste del osciloscopio		Puntos de confirmación	Puntos de ajuste	Items de confirmación/ Especificaciones de ajuste	Procedimiento de ajuste
	V	H				
		200 ns/div.	TP1 Patilla 1 (salida de RF)	Tornillo de ajuste tangencial	Imagen de prueba más nítida posible	• Observe la forma de onda emitida por la patilla 1 de TP1 (salida de RF) en el osciloscopio y ajuste el tornillo de ajuste tangencial hasta obtener la imagen de prueba más nítida posible. • El punto de ajuste correcto se encuentra entre los dos puntos en que la imagen de prueba se vuelve borrosa al girar el tornillo de ajuste tangencial en sentido horario y después en sentido antihorario. Cuando la forma de onda se aclare en su totalidad, trate de hacer nítidas las líneas finas que forman la figura de diamante en el centro de la imagen de prueba (vea la Foto 9 -6). Ajuste hasta que la figura de diamante esté compuesta de líneas finas simples.  Fig. 9 -12. Nota: Emplee una llave hexagonal para mantener el captador levantado durante este ajuste.

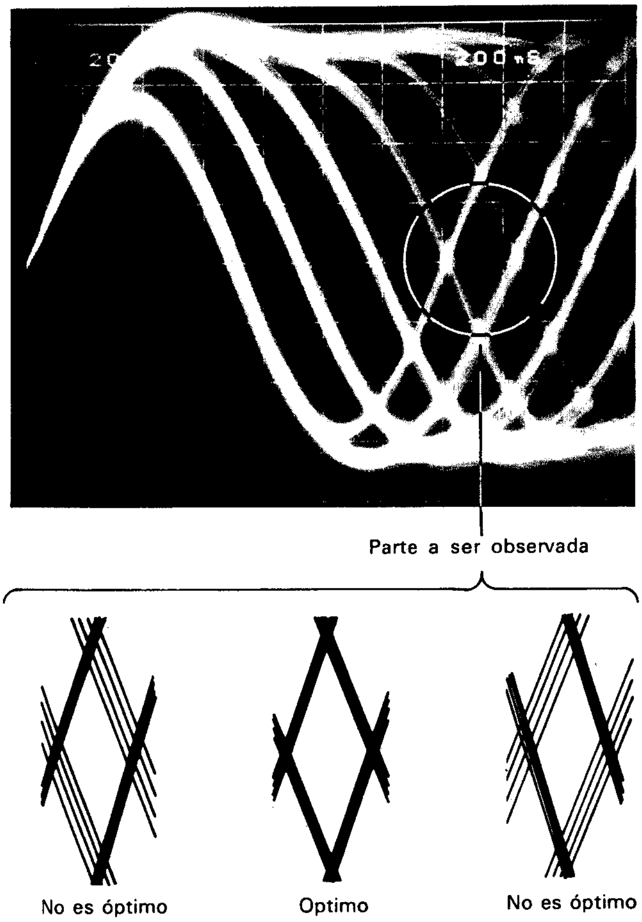


Foto 9-6.

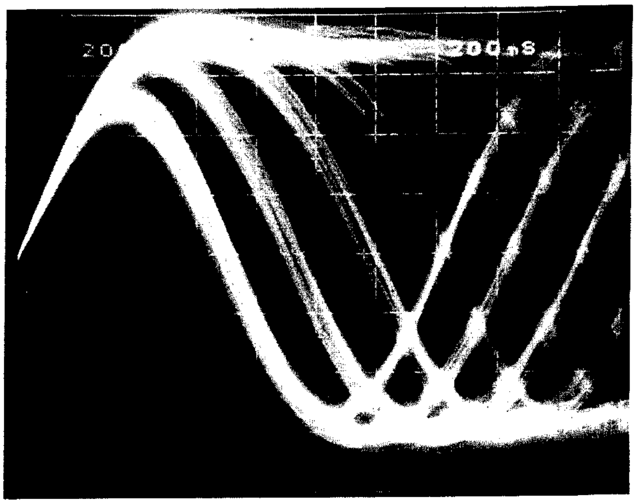


Foto 9-7.

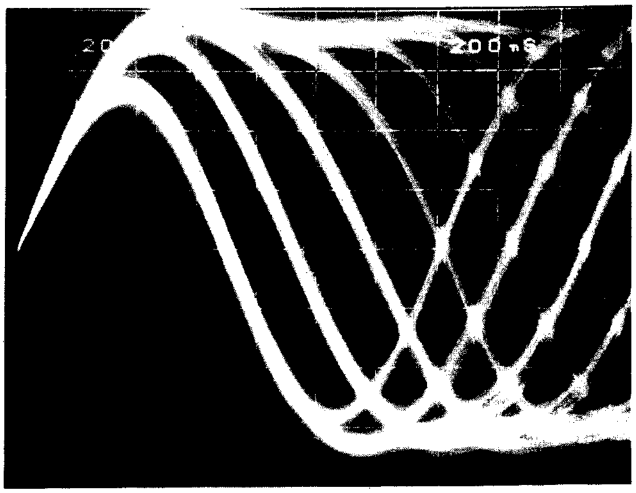


Foto 9-8.

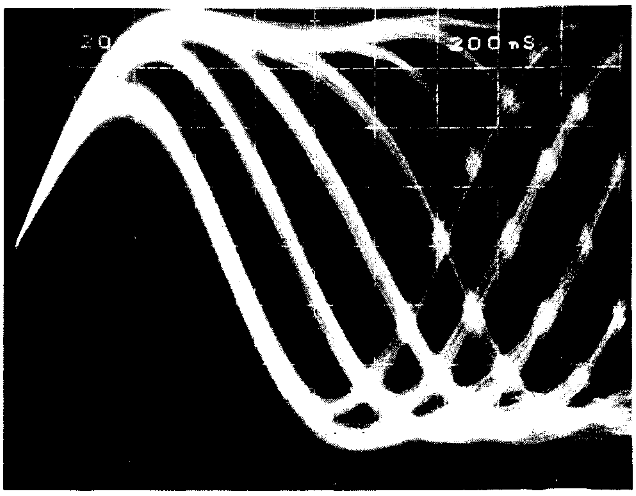
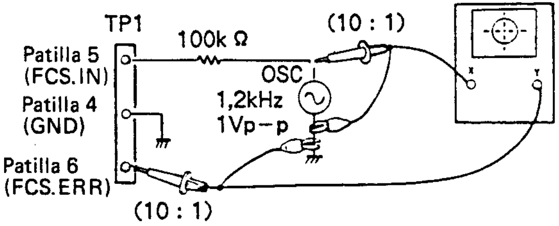
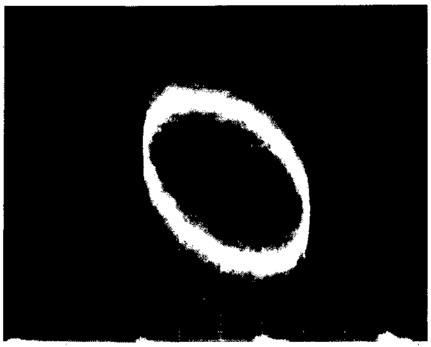
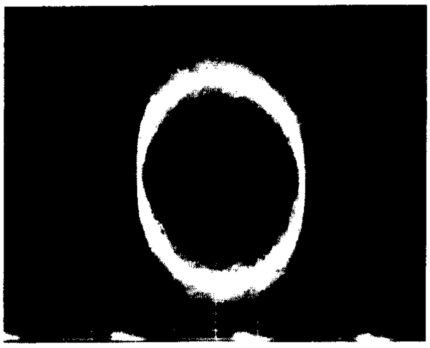


Foto 9-9.

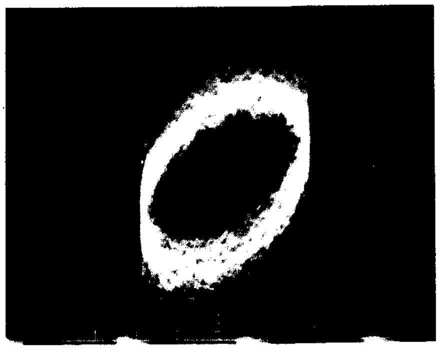
Paso N°	Ajuste del osciloscopio		Puntos de confirmación	Puntos de ajuste	Items de confirmación/ Especificaciones de ajuste	Procedimiento de ajuste
	V	H				
8	**AJUSTE DE GANANCIA DE ENFOQUE**					
	Canal 1 (x), canal 2 (y) 20 mV/div., 5 mV/div. (sonda: 10:1)		Eje de las "x" Patilla 5 de TP1 (FCS.IN) Eje de las "y" Patilla 6 de TP1 (FCS.ERR)	VR3 (FCS.GAN)	Diferencia de fase 90°	• Con el oscilador apagado, conecte el osciloscopio y el oscilador como lo ilustra la Fig. 9-13. • Establezca el modo de reproducción normal. • Encienda el oscilador y ajústelo para emitir una señal de 1,2 kHz y 1 Vp-p. Nota: Algunos osciladores descargan una tensión de CC al ser encendidos. En este caso es recomendable conectar el oscilador después de encenderlo. • Ajuste VR3 (FCS. GAN, ganancia de enfoque) de modo que la figura de Lissajous se vea como un círculo horizontal en el osciloscopio (diferencia de fase 90°).  TP1 100k Ω (10 : 1) Patilla 5 (FCS.IN) OSC 1,2kHz 1Vp−p Patilla 4 (GND) Patilla 6 (FCS.ERR) (10 : 1) X Y Fig. 9-13.



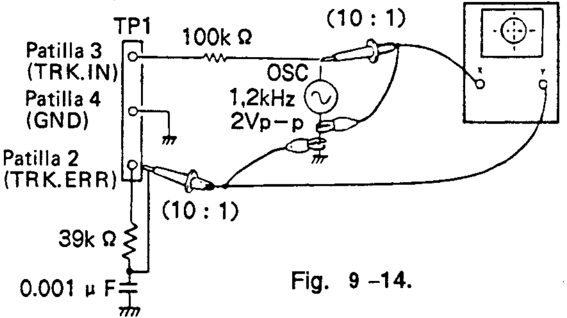
Alta ganancia
Foto 9-10.

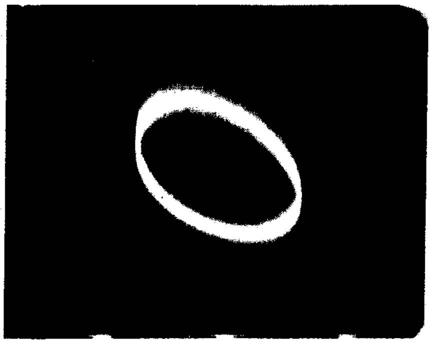


Ganancia óptima
Foto 9-11.

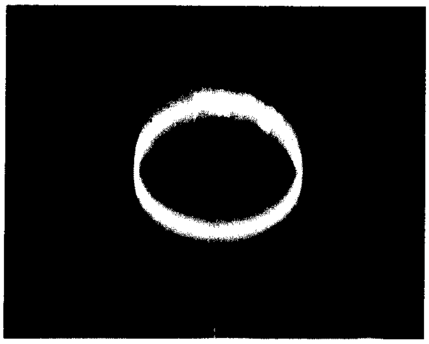


Baja ganancia
Foto 9-12.

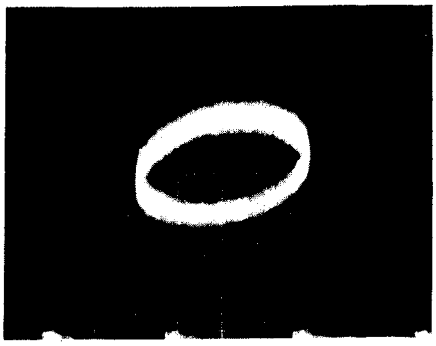
Paso N°	Ajuste del osciloscopio		Puntos de confirmación	Puntos de ajuste	Items de confirmación/ Especificaciones de ajuste	Procedimiento de ajuste
	V	H				
9	**AJUSTE DE GANANCIA DE SEGUIMIENTO**					
	Canal 1 (x), canal 2 (y) 50 mV/div., 5 mV/div. (sonda: 10:1)		Eje de las "x" Patilla 3 de TP1 (TRK. IN) Eje de las "y" Patilla 2 de TP1 (TRK. OUT)	VR4 (TRK. GAN)	Diferencia de fase 90°	• Con el oscilador apagado, conecte el osciloscopio y el oscilador como lo ilustra la Fig. 9-14. • Establezca el modo de reproducción normal. • Encienda el oscilador y ajústelo para emitir una señal de 1,2 kHz y 2 Vp-p. Nota: Algunos osciladores descargan una tensión de CC al ser encendidos. En este caso es recomendable conectar el oscilador después de encenderlo. • Ajuste VR4 (TRK. GAN, ganancia de enfoque) de modo que la figura de Lissajous se vea como un círculo horizontal en el osciloscopio (diferencia de fase 90°).  TP1 Patilla 3 (TRK.IN) Patilla 4 (GND) Patilla 2 (TRK.ERR) 100k Ω (10 : 1) OSC 1,2kHz 2Vp-p (10 : 1) 39k Ω 0.001 μ F Fig. 9-14.



Alta ganancia
Foto 9-13.



Ganancia óptima
Foto 9-14.



Baja ganancia
Foto 9-15.

Paso N°	Ajuste del osciloscopio		Puntos de confirmación	Puntos de ajuste	Items de confirmación/ Especificaciones de ajuste	Procedimiento de ajuste
	V	H				
10	**AJUSTE DE FRECUENCIA PROPIA DEL OSCILADOR CONTROLADO POR TENSION**					
			Patilla 2 de TP2 (PLCK)	VR8 (VCO. ADJ)	4.275 ± 0,025 MHz	• Establezca el modo de prueba (vea la página 72). • Ponga en cortocircuito los contactos ASY y GND con un destornillador o herramienta similar (vea la Fig. 9-1). • Conecte un contador de frecuencia capaz de medir frecuencias de 10 MHz y mayores al puente PLCK. • Ajuste VR8 (VCO. ADJ, ajuste de frecuencia libre del oscilador controlado por tensión) de modo que el contador de frecuencia indique 4,275 ± 0,025 MHz.
11	**CONFIRMACION DEL CARACTER S (ERROR DE ENFOQUE)**					
			Patilla 6 de TP1 (FCS. ERR)			• Establezca el modo de prueba (vea la página 72). • Cortocircuite el contacto 5 de TP1 FCS. IN (entrada de enfoque) y el contacto 4 a tierra. • Observe la forma de onda emitida por la patilla 6 de TP1 (FCS.ERR, error de enfoque) al presionar la tecla TRACK FWD (▶▶|).

10.4 ELECTRICAL PARTS LIST

NOTES:

- *Parts without part number cannot be supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω　56×10^1　561........................RD1/4PS $\boxed{5}\,\boxed{6}\,\boxed{1}$ J
47kΩ　47×10^3　473........................RD1/4PS $\boxed{4}\,\boxed{7}\,\boxed{3}$ J
0.5Ω　0R5..RN2H $\boxed{0}\,\boxed{R}\,\boxed{5}$ K
1Ω　010..RS1P $\boxed{0}\,\boxed{1}\,\boxed{0}$ K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ　562×10^1　5621......................RN1/4SR $\boxed{5}\,\boxed{6}\,\boxed{2}\,\boxed{1}$ F

Miscellaneous Parts

P.C.BOARD ASSEMBLIES

Mark	Symbol & Description	Part No.
	Function assembly	
	AF assembly	AWZ2217
	MAIN VR assembly	
	HEAD PHONO assembly	
	TRANS CONNECT assembly	
	AMP, GEQ, CTRL assembly	AWZ2218
	DECK−1 SW assembly	
	DECK−2 SW assembly	
	DECK CTRL assembly	AWZ2219
	POWER SW assembly	
	DECK CENTER assembly	
	POWER SUPPLY assembly	AWZ2241
	CONNECT assembly	

OTHERS

Mark	Symbol & Description	Part No.
⚠	T2001 Power Transformer (AC220V/240V)	ATS1179
⚠	FU2003 Fuse (T800mA/250V)	AEK−507
⚠	FU2001,FU2004,FU2005 Fuse (T1.25A/250V)	AEK−509
⚠	AC Power cord	ADG−063
	Hall IC	AZE1018
	Leaf SW	AZS1054
	Leaf SW	AZS1034
	P.C.BOARD	AZN1835
	Bobbin	AZS1035
	Bobbin	AZS1036
	Motor assembly	AZX1020
	Head frame assembly	AZP1023
	Head frame assembly	AZP1016

FUNCTION assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC903,IC904	NJM4558DXP
	IC901	TC4052BP
	IC902	TC4066BP
	Q901	DTA143ES
	Q902	DTC143ES

CAPACITORS

Mark	Symbol & Description	Part No.
	C903−C906,C929,C930	CCCSL101J50
	C907,C908	CEAS2R2M50
	C909,C910	CKCYB152K50
	C911,C912	CKCYB562K50
	C913,C914	CEAS470M10
	C919,C920	CEAS100M25

RESISTORS

Mark	Symbol & Description	Part No.
	All resistors	RD1/8PM☐☐☐J

OTHERS

Mark	Symbol & Description	Part No.
	Terminal 4P (VIDEO, PHONO)	AKB1085

AF assembly (AWZ2217)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC471	HA12136
	IC306	ICP−N38
	IC301,IC304	MC7812CT
	IC523	M74LS05P
	IC431,IC501,IC522	NJM4558DXP

Mark	Symbol & Description	Part No.
	IC302	NJM78M05FA
	IC303	NJM79M05FA
	IC331	STK4142−2GP
	IC332	TA7291S
	IC412,IC521	TC4066BP
	Q578	RN1201
	Q354,Q573−Q577	RN1203
	Q571,Q572,Q579	RN2203
	Q355,Q483,Q580	2SA1048
	Q581,Q582	2SA1515
	Q493,Q494	2SC1740SLN
	Q351−Q353,Q356,Q411,Q412, Q431−Q438,Q481,Q482,Q491, Q492,Q521,Q522	2SC2458
	Q584	2SC2603
	Q523,Q524	2SC2878
	Q413,Q414	2SK373
	D351,D352,D411−D416,D491, D492,D571−D580	HSS−104−02
	D301	D3SBA20
	D310 Zener Diode	RD7.5ESB
	D302−D308,D311	S5566

RELAY

Mark	Symbol & Description	Part No.
	RY351	ASR1005

COILS & TRANSFOTMERS

Mark	Symbol & Description	Part No.
	F491,F492 Dolby filter	ATF1064
	L351,L352 AF choke coil	ATH−133
	L521,L522 Trap coil	ATM−037
	L451,L452 Trap coil	ATM1001
	T581 Bias oscillator transformer	ATX−043
	L523,L524 Inductor	LTA392J

CAPACITORS

Mark	Symbol & Description	Part No.
	C588 (2000P/630)	ACE1020
	C301,C302 (2200/42)	ACH1109
	C417,C418	CCCSL101K500
	C1611,C1612	CCCSL221J50
	C419,C420	CCCSL560K500
	C421,C422	CCMSL100D50
	C343	CEANP100M50
	C341	CEANP220M50
	C345	CEANP470M50
	C473,C474	CEASR22M50
	C495	CEASR33M50
	C437−C440,C491,C492, C521−C524	CEAS010M50
	C313,C342,C344,C352,C471, C472,C493,C494,C496,C570	CEAS100M50
	C475,C476	CEAS101M10
	C593	CEAS101M16
	C339,C340	CEAS101M25
	C304,C305	CEAS102M25
	C331,C332,C531,C532	CEAS2R2M50
	C307−C310,C478	CEAS220M25
	C351	CESA221M10
	C303	CEAS222M25
	C433,C434,C525,C526	CEAS330M16
	C591	CEAS4R7M50
	C435,C436	CEAS470M10
	C545,C546,C581	CEAS470M16
	C335,C337,C338	CEAS470M25
	C336	CEHAQ470M25
	C541,C542	CFTXA333J50
	C527,C528	CFTXA683J50
	C347−C350	CKCYX104M25
	C316	CKDYB392K500
	C346	CKDYF473Z50
	C587	CKMYB221K50
	C411,C412	CKMYB331K50
	C413,C414	CKMYB471K50
	C533,C534,C586	CKMYB681K50
	C415,C416	CKMYB821K50
	C582,C584	CQMA103K50
	C585	CQMA123K250
	C583	CQMA153K50
	C529,C530	CQMA182J50
	C535,C536	CQMA183J50
	C539,C540	CQMA562J50
	C590	CQMA562K400
	C431,C432	CQMA682J50
	C537,C538	CQMA752J50

RESISTORS

Mark	Symbol & Description	Part No.
	R307,R308	RS2LMFR22J
	R364	RS2LMF471J
	VR451,VR452 (100k)	VRTM6H104
	VR453,VR454 (20k)	VRTM6H203
	VR521,VR522 (20k)	VRTM6V203

Mark	Symbol & Description	Part No.
	VR411,VR412 (200k)	VRTM6V204
	R590	RD1/2PM180J
	R341,R342,R345,R350−R352	RD1/4PMFL☐☐☐J
	R301−R305,R337−R340,R343, R344,R348,R349	RD1/4PM☐☐☐J
	Other resistors	RD1/8PM☐☐☐J

OTHERS

Mark	Symbol & Description	Part No.
	4P Speaker terminal	AKE1012
	DC jack	AKN−203

MAIN VR assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC391	NJM4558DXP
	Q393	2SA1048
	Q391,Q392	2SC2878

COILS

Mark	Symbol & Description	Part No.
	L391,L392 Axial Inductor (5.6μH)	LAU5R6K

CAPACITORS

Mark	Symbol & Description	Part No.
	C393,C394	CCMSL101J50
	C391,C392	CEAS4R7M50
	C397,C398	CEAS470M10
	C395,C396	CKCYF473Z50

RESISTORS

Mark	Symbol & Description	Part No.
	VR391 (100k × 2)	ACX1021
	Other resistors	RD1/8PM☐☐☐J

HEAD PHONE assembly

CAPACITORS

Mark	Symbol & Description	Part No.
	C401	CKCYF473Z50

RESISTORS

Mark	Symbol & Description	Part No.
	R402−R405	RD1/2PMF681J
	R401	RD1/8PM100J

OTHERS

Mark	Symbol & Description	Part No.
	Head phone Jack	AKN1010

TRANS CONNECT assembly

No parts are supplied with the TRANS CONNECT assembly.

AMP,GEQ CTRL assembly (AWZ2218)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC701	M74LS05P
	IC702	TC4081BP
	IC721,IC722	BA3812L
	Q701,Q702	DTA143ES
	D701−D705 LED	AEL1065−A
	D707,D708	HSS104−02

SWITCHES

Mark	Symbol & Description	Part No.
	S701−S705	ASG1029

CAPACITORS

Mark	Symbol & Description	Part No.
	C743,C744	CCMSL101J50
	C727,C728	CEASR15M50
	C723,C724	CEASR68M50
	C741,C742,C747,C748	CEAS100M25
	C749,C750	CEAS470M16
	C733,C734	CKDYB182K50
	C729,C730	CKDYB392K50
	C739,C740	CKDYB682K50
	C735,C736	CKDYX153M25
	C725,C726	CKDYX183M25
	C721,C722	CKDYX393M25
	C731,C732	CKDYX683M25
	C745,C746	CKMYB331K50
	C737,C738	CKMYB391K50

RESISTORS

Mark	Symbol & Description	Part No.
	VR721−VR725 (30k-B5 × 2)	ACU1031
	Other resistors	RD1/8PM☐☐☐J

DECK－1 SW assembly

SWITCHES

Mark	Symbol & Description	Part No.
	S811－S815 Tact switch (1FWD, 1REV, 1FF, 1REW, 1STOP)	ASG1029

DECK－2 SW assembly

SWITCHES

Mark	Symbol & Description	Part No.
	S821－S825 Tact switch (2FWD, 2REV, 2FF, 2REW, 2STOP)	ASG1029

DECK CTRL assembly (AWZ2219)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC802	M74LS42P
	IC801	PDE029－C
	Q814	DTC143ES
	Q803－806	RN1201
	Q801,802	RN2204
	Q807－812	2SA1515
	D801,D802,D808,D810－D815, D820－D824,D826,D834－D836	HSS104－02

COILS

Mark	Symbol & Description	Part No.
	X801 Ceramic resonator	ASS1018
	L801 Axial Inductor (22μH)	LAU220K

CAPACITORS

Mark	Symbol & Description	Part No.
	C801	CEASR33M50
	C803	CEAS101M10
	C802	CEAS101M16
	C839,C840	CKCYB102K50
	C804－C807	CKCYF473Z50

RESISTORS

Mark	Symbol & Description	Part No.
	VR803 (10k)	VRTM6H103
	VR801,VR802 (20k)	VRTM6H203
	Other resistors	RD1/8PM□□□J

POWER SW assembly

SWITCH

Mark	Symbol & Description	Part No.
	S707	ASG1029

DECK CENTER assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	D845,D846LED	AEL1065
	D841－D844LED	AEK1076
	D847－D850	HSS104－02

SWITCHES

Mark	Symbol & Description	Part No.
	S841－S846 Tact switch	ASG1029
	S847,S848 Slide swithe	ASH1014

RESISTORS

Mark	Symbol & Description	Part No.
	All resistors	RD1/8PM□□□J

POWER SUPPLY assembly (AWZ2241)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC1002	NJM78M56FA
	IC1001	TC4069UBP
	Q1002	2SB560
	Q1003	2SC2240
	D1006	RD11ESB
	D1008,D1011－D1013	HSS104－02
	D1004 Zener Diode	RD33ESB2
	D1009 Zener Diode	RD5.1ESB
	D1001,D1003,D1005,D1007, D1014	S5566

TRANSFORMER

Mark	Symbol & Description	Part No.
⚠	T1001 Power transformer	ATT1092

RELAY

Mark	Symbol & Description	Part No.
⚠	RY1001 Relay	ASR1024

CAPACITORS

Mark	Symbol & Description	Part No.
	C1009,C1010	CEAS100M50
	C1005	CEHAQ220M50
	C1004	CEAS221M50
	C1007	CEAS222M16
	C1011	CEAS4R7M50
	C1008	CEAS470M16
	C1006	CEAS470M50
	C1001	CEAS470M63

RESISTORS

Mark	Symbol & Description	Part No.
	R1011	RD1/4PMFL4R7J
	R1003	RS2LMF222J
	R1005	RS2LMF821J
	Other resistors	RD1/8PM☐☐☐J

CONNECT assembly

No parts are supplied with the connection assembly.

• Head Adjustment of Deck II

- Deck II is provided with an automatic tape selector mechanism.
- Note: Do not switch over FWD and REV while the driver is inserted.

1. Head Azimuth Adjustment

Procedure	Tape selector	Mode	Input signal/test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	NORM	PLAY	Playback the test tape STD-331B (10 kHz, -20 dB).	Head azimuth adjustment screw (Fig.10−4)	TP-L (Lch) TP-R (Rch)	Maximum playback signal level	Lock the screw with screw lock after completing adjustment.

2. Playback Level Adjustment

- Be sure to make a careful adjustment, as the adjustment determines the DOLBY NR level for playback.

Procedure	Tape selector	Mode	Input signal/test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	NORM	PLAY	Playback the test tape STD-331B (315 Hz, 0 dB).	VR451 (Lch) VR452 (Rch)	TP-L (Lch) TP-R (Rch)	−6.7 dBV	

3. Adjustment of frequency characteristics of recording/playback

- As this procedure is for adjustment of the recording bias, be careful not to increase the distortion rate by under-adjusting the bias.

Procedure	Tape selector	Mode	Input signal/test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	NORM	REC	Load the test tape STD-630 and set to record mode.	—	Area between Ⓐ and Ⓑ (AF Ass'y) shown in Fig.10−1.	Confirm that the oscillation frequency is 105 kHz ±1 kHz.	If the adjustment value cannot be set within the sepcification, adjust the T581.
2	NORM	REC	Apply a signal of 315 Hz to the VIDEO input terminal and set the function to " VIDEO ".	Input signal level	TP-L (Lch) TP-R (Rch)	−27.7 dBV	
3	NORM	REC/PLAY	Record and playback the test tape STD-630 (315 Hz and 10 kHz).	VR411 (Lch) VR412 (Rch)	TP-L (Lch) TP-R (Rch)	Repeat the correction so that the playback level of 10 kHz remains 0 ±0.5 dB in relation to 315 Hz.	

4. Recording Level Adjustment

Procedure	Tape selector	Mode	Input signal/test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	NORM	REC	Apply a signal of 315 Hz to the VIDEO input terminal and set the function to " VIDEO ".	Input signal level	TP-L (Lch) TP-R (Rch)	−7.7 dBV	
2	NORM	REC/PLAY	Record and playback the test tape STD-630 (315 Hz).	VR521 (Lch) VR522 (Rch)	TP-L (Lch) TP-R (Rch)	Repeat the recording and correction so that the playback level of 315 Hz is −6.7 dBV.	

• Checking Procedure for Deck II

1. Action of ALC

Procedure	Tape selector	Mode	Input signal/test tape	Adjustment location	Measuring location	Cheking value	Remarks
1	NORM	REC	Apply a signal of 315 Hz to the VIDEO input terminal and set the function to " VIDEO ".	Input signal level	TP-L (Lch) TP-R (Rch)	−7.7 dBV	
2				+10 dB against the input level of step 1.		−2.7 dBV ±2.5 dB	

10.5 RÉGLAGE

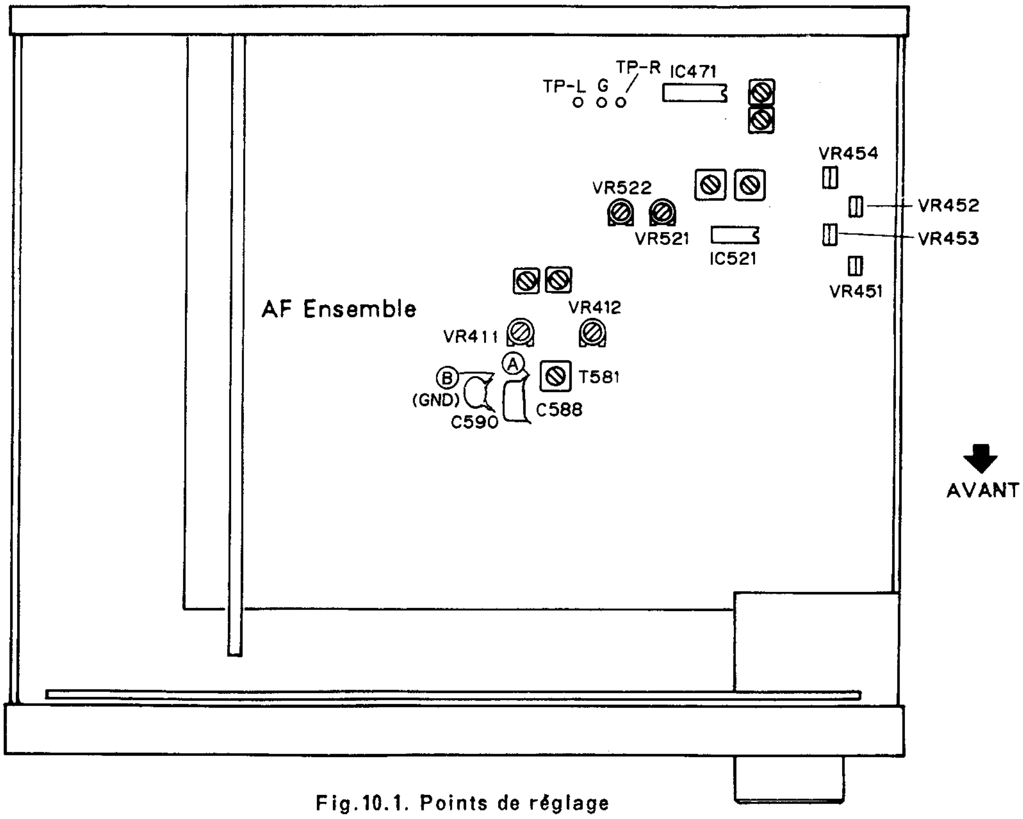

TP-L
G
TP-R
IC471
VR454
VR522
VR452
VR453
VR521
IC521
VR451
AF Ensemble
VR412
VR411
Ⓐ
Ⓑ
(GND)
T581
C590
C588
AVANT

Fig.10.1. Points de réglage

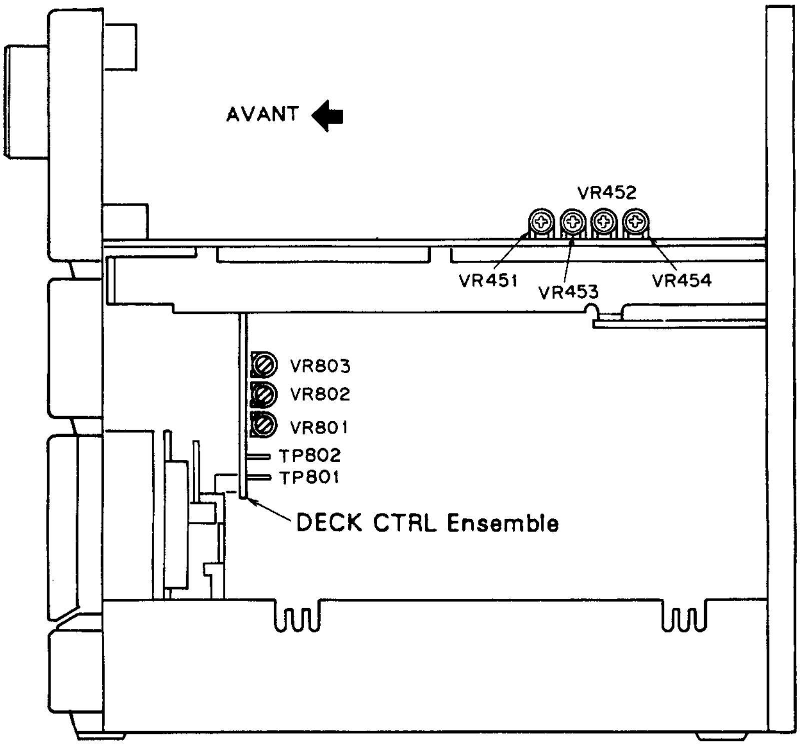

AVANT
VR452
VR451
VR453
VR454
VR803
VR802
VR801
TP802
TP801
DECK CTRL Ensemble

Fig.10.2. Points de réglage

- Les réglages et les mesures sont généralement faits dans l'ensemble AF, à moins de spécification contraire.
- Régler l'égaliseur graphique sur FLAT, selon le pays de destination, l'unité peut être équipée d'une commande de volume de mixage de micro.
  Si une commande de volume de mixage de micro est incorporée, prière de la régler à la position minimum.
- La fonction doit toujours être réglée sur "TAPE" à moins de spécification contraire.

Réglages mécaniques

- Bande d'étalonnage: STD-301 (3 kHz, 30 mn.)
- Réglage du mode de vitesse double: Court-circuiter TP801 et TP802 de l'ensemble de commande. Pour libérer le mode, ouvrir le court-circuit.

1. Réglage de la vitesse de bande							
No.	Mode	Signal appiligeé / bande d'étalonnage	Emplacement du réglage		Emplacement du point de mesure	Valeur relevée	Dbservations
1	PLAY	Reproduire la bande STD-301 par 3 kHz.	Platine I	ENSEMBLE COMM. PLATINE VR801	TP-L (can. G)	Appuyer sur le contacteur PLAY et régler la fréquence sur 3.010 Hz ±10 Hz. Vérifier que le pleurage et scintillement est dans la limite de 0,2%.	
2	PLAY (Mode de vitesse double)			—		Appuyer sur le contacteur PLAY dans le mode de vitesse double et vérifier que la fréquence est 6.000 Hz ±1.000 Hz. Noter le chiffre.	Libérer le mode de vitesse double après le réglage.
3	PLAY (Mode de vitesse double)		Platine II	ENSEMBLE COMM. PLATINE VR803	TP-R (can. D)	Appuyer sur le contacteur PLAY dans le mode de vitesse double et régler la fréquence pour qu'elle soit dans la limite de ±30 Hz du chiffre noté dans l'étape No. 2.	Libérer le mode de vitesse double après le réglage.
4	PLAY			ENSEMBLE COMM. PLATINE VR802		Appuyer sur le contacteur PLAY et régler la fréquence sur 3.010 Hz ±10 Hz. Vérifier que le pleurage et scintillement est dans la limite de 0,2%.	

Réglages électriques

■ Vérifier les points suivants et effectuer les opérations suivantes avant procéder aux réglages électriques.

1. Le réglage de la vitesse de bande a été complété.
2. Nettoyer et démagnétiser la tête avec un démagnétiseur de tête.
3. Lors de la mesure, le niveau doit être de 0 dBV = 1 Vepp.
4. Utiliser la face A de la bande spécifiée pour le réglage. STD-331B: Pour le réglage du système de lecture.
   STD-630: Bande vierge NORMAL
   STD-620: Bande vierge CrO_2
   STD-610: Bande vierge METAL
5. Préparer les instruments de mesure suivants:
   Millivoltmètre CA, oscillateur à basse fréquence, éatténnateur et oscilloscope.
6. Régler les deux canaux L (gauche) et R (droit), sauf spécification contraire.
7. Régler les commutateurs DOLBY NR sur la position OFF, sauf spécification contraire.
8. Laisser chauffer l'appareil pendant plusieurs minutes avant le réglage. En particulier avant d'effectuer le réglage de la réponse en fréquence d'enregistrement et de lecture, laisser chauffer l'appareil pendant 3 à 5 minutes dans le mode d'enregistrement/lecture (REC/PLAY).
9. Toujours suivre l'ordre spécifié de la méthde réglage. Tout changement de l'ordre peut provoquer des résultats imparfaits.

Liste des réglages

Platine I

1. Azimut de la tête
2. Niveau de lecture

Platine II

1. Azimut de la tête
2. Niveau de lecture
3. Réponse en fréquence d'enregistrement/lecture
4. Niveau d'enregistrement

Vérification de la Platines II

1. Vérifier que le ALC fonctionne correctement.

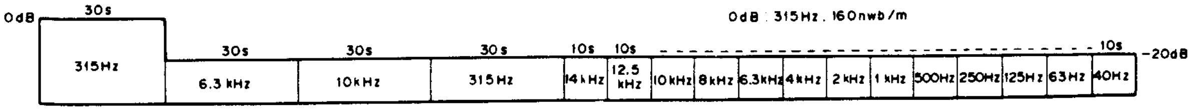

0dB
30s
315Hz
30s
6.3 kHz
30s
10kHz
30s
315Hz
10s
14kHz
10s
12.5 kHz
10kHz
8kHz
6.3kHz
4kHz
2kHz
1kHz
500Hz
250Hz
125Hz
63Hz
10s
40Hz
-20dB
0dB : 315Hz . 160nwb/m

Fig.10.3. Bande d'étalommge STD-331B

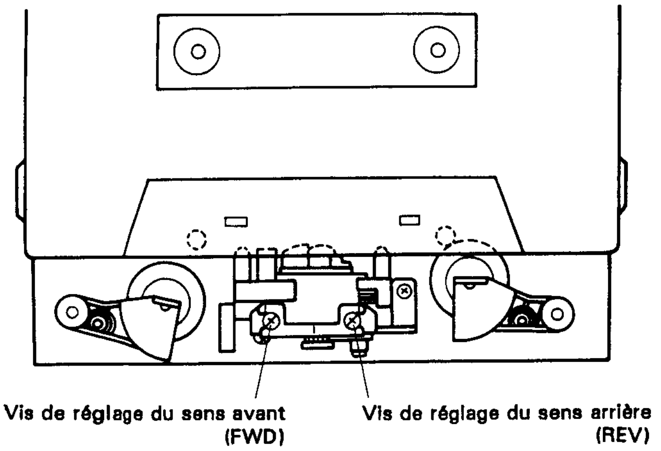

Vis de réglage du sens avant (FWD)
Vis de réglage du sens arrière (REV)

Fig.10.4. Réglage d'azimut de la tête

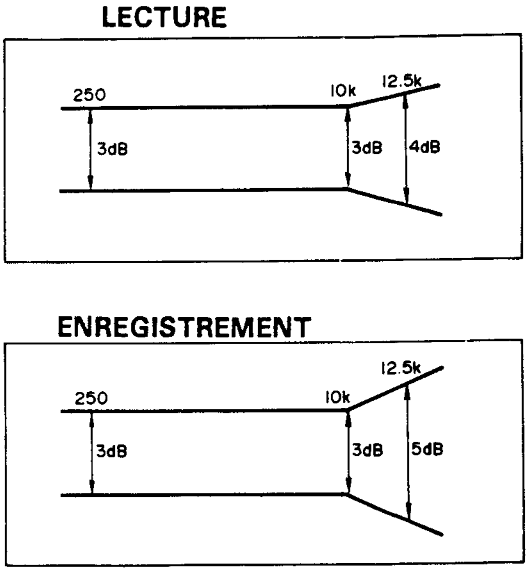


Fig.10.5. Réponse en fréquence

• Réglage de la Platine I

- La Platine I est équipée d'un mécanisme de sélection automatique de bande.
- Remarque: Ne pas commuter entre le sens avant (FWD) et le sens arrière (REV) pendant que le tournevis est inséré.

1. Réglage d'azimut de la tête

Opération	Sélecteur de bande	Mode	Signal appiligeé / bande d'étalonnage	Emplacement du réglage	Emplacement du point de mesure	Valeur relevée	Obserrations
1	NORM	PLAY	Reproduire la bande d'étalonnage STD-331B (10 kHz, -20 dB).	Vis de réglage d'ézimut de tête (Fig.10-4)	TP-L (can. G) TP-R (can. D)	Niveau maximum du signal de lecture	Une fois le réglage terminé, bloquer la vis avec un frein de vis.

2. Réglage du niveau de lecture

- Toujours effectuer un réglage minutieux, car la valeur réglée sera le niveau Dolby pour la lecture.

Opération	Sélecteur de bande	Mode	Signal appiligeé /· bande d'étalonnage	Emplacement du réglage	Emplacement du point de mesure	Valeur relevée	Obserrations
1	NORM	PLAY	Reproduire la bande d'éealonnfe STD-331B (315 kHz, 0 dB)	VR453 (can. G) VR454 (can. D)	TP-L (can. G) TP-R (can. D)	−6,7 dBV	

• Réglage de la Platine II

- La Platine II est équipée d'un mécanisme de sélection automatique de bande.
- Remarque: Ne pas commuter entre le sens avant (FWD) et le sens arrière (REV) pendant que le tournevis est inséré.

1. Réglage d'azimut de la tête

Opéra-tion	Sélecteur de bande	Mode	Signal appiligeé / bande d'étalonnage	Emplacement du réglage	Emplacement du point de mesure	Valeur relevée	Obserrations
1	NORM	PLAY	Reproduire la bande d'étalonnage STD-331B (10 kHz, -20 dB).	Vis de réglage d'ézimut de tête (Fig.10−4)	TP-L (can. G) TP-R (can. D)	Niveau maximum du signal de lecture	Une fois le réglage terminé, bloquer la vis avec un frein de vis.

2. Réglage du niveau de lecture

- Toujours effectuer un réglage minutieux, car la valeur réglée sera le niveau Dolby pour la lecture.

Opéra-tion	Sélecteur de bande	Mode	Signal appiligeé / bande d'étalonnage	Emplacement du réglage	Emplacement du point de mesure	Valeur relevée	Obserrations
1	NORM	PLAY	Reproduire la bande d'éealonnfe STD-331B (315 kHz, 0 dB)	VR451 (can. G) VR452 (can. D)	TP-L (can. G) TP-R (can. D)	−6,7 dBV	

3. Réglage de la réponsen fréquence d'enregistrement/lecture

- Cette opération réglant la polarisation d'enregistrement, faire attention de ne pas augmenter la distorsion par un réglage insuffisant de la polarisation.

Pro-cédure	Sélecteur de bande	Mode	Signal appiligeé / bande d'étalonnage	Emplacement du réglage	Emplacement du point de mesure	Valeur relevée	Obserrations
1	NORM	REC	Charger la bande d'éealonnage STD-630 et régler dans le mode d'enregistrement.	—	Partie entre Ⓐ et Ⓑ (ensemble d'enregistrement (A.F)) indiquée sur la Fig. 10-4	Vérifier que la fréquence d'oscillation est de 105 kHz ±1 kHz.	Si la valeur de mesurée ne peut pas être réglée dans les limites spécifiées, régler T581.
2	NORM	REC	Appliquer un signal de 315 Hz à la borne d'entrée VIDEO et régler la fonction sur "VIDEO".	Niveau du signal d'entrée	TP-L (can. G) TP-R (can. D)	−27,7 dBV	
3	NORM	REC/ PLAY	Enregistrer et reproduire la bande d'étalonnage STD-630 (315 Hz et 10 kHz).	VR411 (can. G) VR412 (can. D)	TP-L (can. G) TP-R (can. D)	Répéter la correction de sorte que le niveau de lecture de 10 kHz soit de 0 ±0,5 dB en relation avec 315 Hz.	

4. Réglage du niveau d'enregistrement

Pro-cédure	Sélecteur de bande	Mode	Signal d'entrée / bande d'essai	Emplacement du réglage	Emplacement du point de mesure	Valeur relevée	Remarques
1	NORM	REC	Appliquer un signal de 315 Hz à la borne d'entrée VIDEO et régler la fonction sur "VIDEO".	Niveau du signal d'entrée	TP-L (can. G) TP-R (can. D)	−7,7 dBV	
2	NORM	REC/ PLAY	Enregistrer et reproduire la bande d'essai STD-630 (315 Hz).	VR521 (can. G) VR522 (can. D)	TP-L (can. G) TP-R (can. D)	Répéter l'enregistrement et la correction de sorte que le niveau de lecture de 315 Hz soit de −6,7 dBV.	

• Vérification de la Platine II

1. Action du ALC

Opéra-tion	Sélecteur de bande	Mode	Signal appiligeé / bande d'étalonnage	Emplacement du réglage	Emplacement du point de mesure	Valeur relevée	Obserrations
1	NORM	REC	Appliquer un signal de 315 Hz à la borne d'entrée VIDEO et régler la fonction sur "VIDEO".	Niveau du signal d'entrée	TP-L (can. G) TP-R (can. D)	−7,7 dBV	
2				+10 dB par rapport au niveau d'entrée de l'étape 1.		−2,7 dBV ±2,5 dB	

10.5 AJUSTE

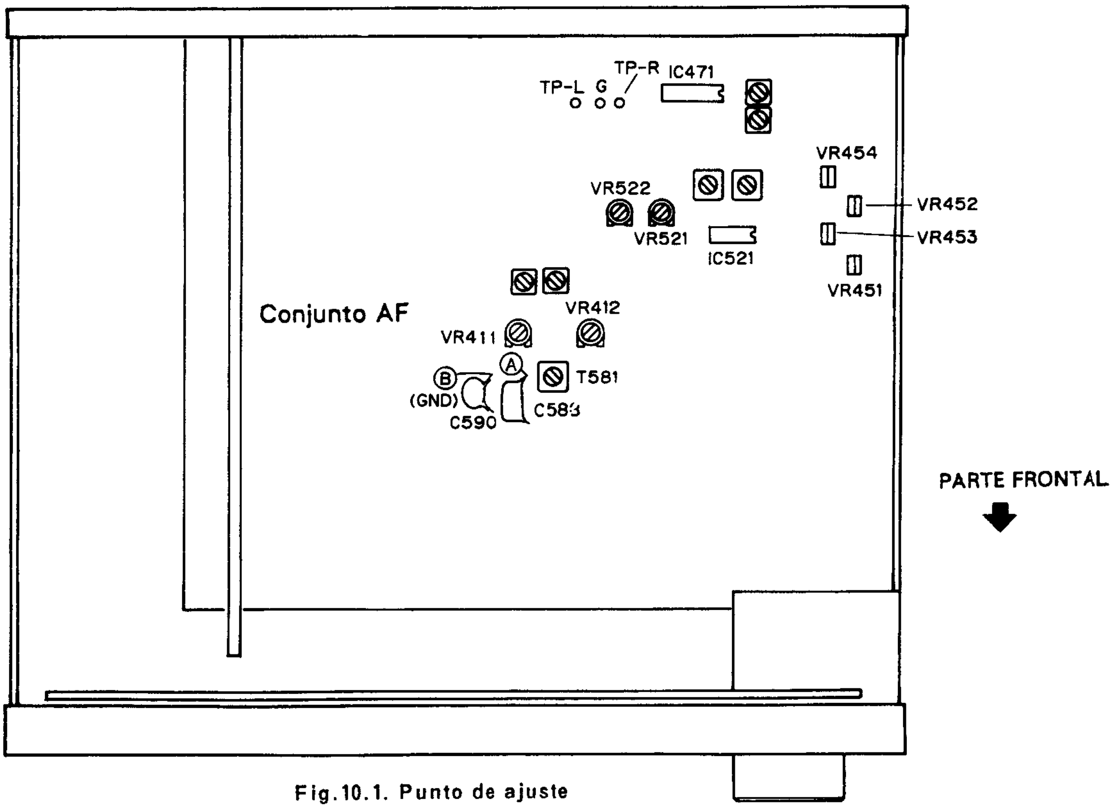

TP-R
IC471
TP-L
G
VR454
VR522
VR452
VR453
VR521
IC521
VR451
Conjunto AF
VR412
VR411
Ⓐ
Ⓑ
(GND)
T581
C583
C590
PARTE FRONTAL

Fig.10.1. Punto de ajuste

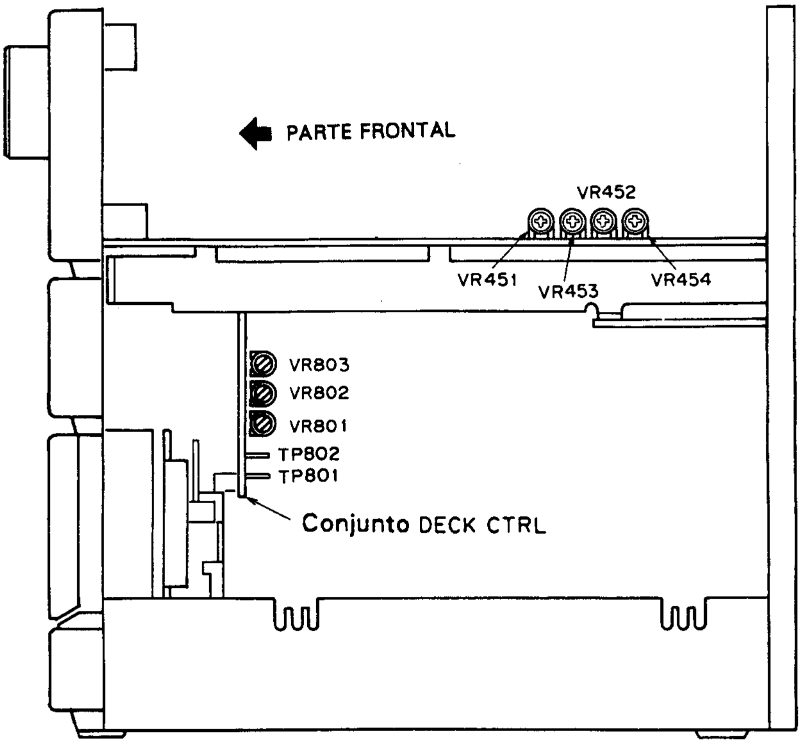

PARTE FRONTAL
VR452
VR451
VR453
VR454
VR803
VR802
VR801
TP802
TP801
Conjunto DECK CTRL

Fig.10.2. Punto de ajuste

- El ajuste y la medición se realizarán normalmente en el conjunto AF, a menos que se especifique otra cosa.
- Desactive (FLAT) el ecualizador gráfico. Dependiendo del páis de destino, el aparatopuede estar provisto de un control de volumen de mezcla microfónica (MIC).
  Se está provisto de un control de volumen de mezcla microfónica (MIC), ajústelo a la posición MIN.
- La función deberá estar ajustada siempre a "TAPE", a menos que se especifique otra cosa.

Ajuste del sistema mecánico

- Cinta de prueba: STD-301 (3 kHz, 30 min)
- Ajuste del modo de velocidad doble: Cortocircuite TP801 y TP802 del conjunto de control. Para desactivar el modo, abra el cortocircuito.

1. Ajuste de la velocidad de la cinta

N°	Modo	Señal de enerada/ cinea de prueba	Punto de ajuste		Punto de medición	Valor de ajuste	Observaciones
1	PLAY	Reproducción de la cinta STDy301 a 3 kHz	Sección I	VR801 del conjunto DECK CTRL	TP-L (canal izquierdo)	Presione PLAY SW y ajuste la frecuencia a 3010 Hz ±10 Hz. Cerciórese de que la fluctuación y el efecto de trémolo estén dentro de los límites del 0,2%.	
2	PLAY (Modo de velocidad doble)			——		Presione PLAY SW en el modo de velocidad doble y compruebe si la frecuencia es 6000 Hz ±1000 Hz. Anote el valor.	Después del ajuste, desactive el modo de velocidad doble.
3	PLAY (Modo de velocidad doble)		Sección II	VR803 del conjunto DECK CTRL	TP-R (canal derecho)	Presione PLAY SW en el modo de velocidad doble y ajuste la frecuencia de forma que quede a ±30 Hz del valor anotado en el paso N°2.	Después del ajuste, desactive el modo de velocidad doble.
4	PLAY			VR802 del conjunto DECK CTRL		Presione PLAY SW y ajuste la frecuencia a 3010 Hz ±10 Hz. Cerciórese de que la fluctuación y el efecto de trémolo estén dentro de los límites del 0,2%.	

Ajuste del sistema eléctrico

■Antes de ajustar el sistema eléctrico, compruebe y realice lo siguiente.

1. El ajuste de la velocidad de la cinta ha finalizado.
2. Limpie y desmagnetice la cabeza empleando un desmagnetizador de cabezas.
3. Cuando se mida, el nivel devel debe ser de 0 dBV = 1V rms.
4. Emplee el lado A de la cinta especificada para realizar el ajuste.
   STD-331B: Para ajuste del sistema de reproducción.
   STD-630: Cinta en blanco NORMAL
   STD-620: Cinta en blanco de CrO2
   SRD-610: Cinta en blanco de METAL
5. Prepare los dispositivos de medición siguientes: Milivoltímetro de AC, oscilador de baja frecuencia, atenuador, y osciloscopio
6. Ajuste ambos canales, izquierdo y derecho, a menos que se especifique otra cosa.
7. Ponga los interruptores DOLBY NR en OFF, a menos que se especifique otra cosa.
8. Antes del ajuste, deje que la unidad se caliente durante varios minutos.
   Especialmente antes de ajustar las características de frecuencia de grabación y reproducción, deje que se caliente durante 3 a 5 minutos en el modo REC/PLAY.
9. Cerciórese de seguir el orden apropiado del procedimiento de ajuste. Cualquier cambio en el orden podría causar un resultado imperfecto.

Lista de adjuste

Sección I

1. Azimut de la cabeza
2. Nivel de reproducción

Sección II

1. Azimut de la cabeza
2. Nivel de reproducción
3. Características de frecuencia de grabación/reproducción
4. Nivel de grabación

Comprobación de la secciones I y II

1. Cerciórese de que ALC esté funcionando adecuadamente.

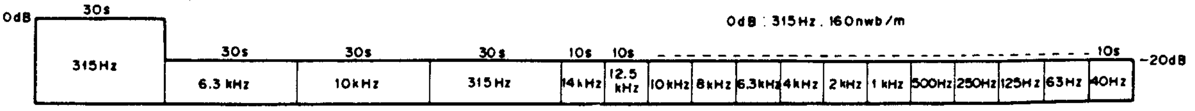
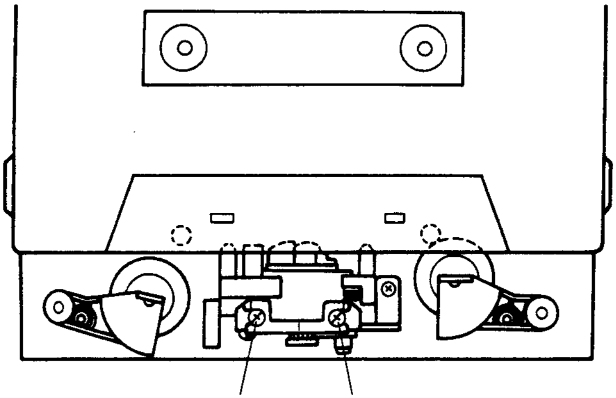


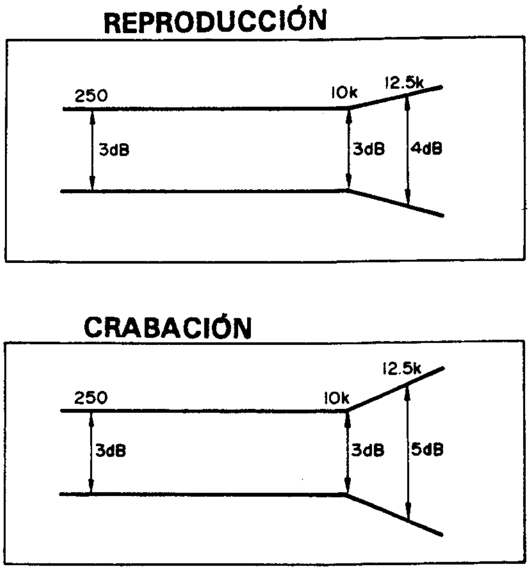
Fig.10.3. Cinta de prueba STD–331B



Tornillo de ajuste azimut de FWD

Tornillo de ajuste azimut de REV

Fig.10.4. Ajuste del azimut de la cabeza



REPRODUCCIÓN

CRABACIÓN

Fig.10.5. Caracterlsticas de frecuencia

- **Ajuste de la sección I**
- La sección I dispone de un mecanismo selector automático de cinta.
- Nota: No cambie a FWD ni a REV mientras el destornillador esté insertado.

1. Ajuste azimutal de la cabeza

Procedimiento	Selector de cinta	Modo	Señal de entrada / cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Observaciones
1	NORM	PLAY	Ponga la cinta de prueba STD-331B en reproducción (10 kHz, -20 dB).	Tornillo de ajuste azimutal de la cabeza (Fig.10–4)	TP-L (canal izquierdo) TP-R (canal derecho)	Nivel máximo de la señal de reproducción	Bloguee el tornillo con bloqueador de tornillos después de haber terminado el ajuste.

2. Ajuste del nivel de reproducción

- Tenga mucho cuidado durante el ajuste, ya que el valor ajustado será el nivel Dolby fijado para reproducción.

Procedimiento	Selector de cinta	Modo	Señal de entrada / cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Observaciones
1	NORM	PLAY	Ponga la cinta de prueba STD-331B en reproducción (315 Hz, 0 dB).	VR453 (canal izquierdo) VR454 (canal derecho)	TP-L (canal izquierdo) TP-R (canal derecho)	–6,7 dBV	

• Ajuste de la sección II

- La sección II dispone de un mecanismo selector automático de cinta.
- Nota: No cambie a FWD ni a REV mientras el destornillador esté insertado.

1. Ajuste azimutal de la cabeza

Procedimiento	Selector de cinta	Modo	Señal de entrada / cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Observaciones
1	NORM	PLAY	Ponga la cinta de prueba STD-331B en reproducción (10 kHz, -20 dB).	Tornillo de ajuste azimutal de la cabeza (Fig.10−4)	TP-L (canal izquierdo) TP-R (canal derecho)	Nivel máximo de la señal de reproducción	Bloquee el tornillo con bloqueador de tornillos después de haber terminado el ajuste.

2. Ajuste del nivel de reproducción

- Tenga mucho cuidado durante el ajuste, ya que el valor ajustado será el nivel Dolby fijado para reproducción.

Procedimiento	Selector de cinta	Modo	Señal de entrada / cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Observaciones
1	NORM	PLAY	Ponga la cinta de prueba STD-331B en reproducción (315 Hz, 0 dB).	VR451 (canal izquierdo) VR452 (canal derecho)	TP-L (canal izquierdo) TP-R (canal derecho)	−6,7 dBV	

3. Ajuste de las características de frecuencia de grabación/reproducción

- Como este procedimiento es para el ajuste de la polarización de grabación, tenga cuidado de no aumentar el valor de distorsión mediante el subajuste de la polarización.

Procedimiento	Selector de cinta	Modo	Señal de entrada / cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Observaciones
1	NORM	REC	Cargue la cinta de prueba STD-630 y establezca el modo de grabación.	—	Área entre Ⓐ y Ⓑ (conjunto de A.F) mostrada en la Fig.10−1.	Confirme que la frecuencia de oscilación sea de 105 kHz ±1 kHz.	Si el valor de ajuste no puede establecerse dentro de la especificación, ajuste T1401 del conjunto de REC.
2	NORM	REC	Aplique una señal de 315 Hz al terminal de entrada VIDEO y ajuste la función a "VIDEO".	Nivel de la señal de entrada	TP-L (canal izquierdo) TP-R (canal derecho)	−27,7 dBV	
3	NORM	REC/ PLAY	Grabe y reproduzca la cinta de prueba STD-630 (315 Hz y 10 kHz).	VR411 (canal izquierdo) VR412 (canal derecho)	TP-L (canal izquierdo) TP-R (canal derecho)	Repita la corrección de forma que el nivel de reproducción de 10 kHz sea de 0 ±0,5 dB en relación con 315 Hz.	

4. Ajuste del nivel de grabación

Procedimiento	Selector de cinta	Modo	Señal de entrada / cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Observaciones
1	NORM	REC	Aplique una señal de 315 Hz al terminal de entrada VIDEO y ajuste la función a "VIDEO".	Nivel de la señal de entrada	TP-L (canal izquierdo) TP-R (canal derecho)	−7,7 dBV	
2	NORM	REC/ PLAY	Grabe y reproduzca la cinta de prueba de forma que el nivel de reproducción de 315 Hz sea de −6,7 dBV.	VR521 (canal izquierdo) VR522 (canal derecho)	TP-L (canal izquierdo) TP-R (canal derecho)	Grabe y reproduzca la cinta de prueba de forma que el nivel de reproducción de 315 Hz sea de −6,7 dBV.	

• Procedimiento de comprobación para la secciones II

1. Acción del ALC

Procedimiento	Selector de cinta	Modo	Señal de entrada / cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Observaciones
1	NORM	REC	Aplique una señal de 315 Hz al terminal de entrada VIDEO y ajuste la función a "VIDEO".	Nivel de la señal de entrada	TP-L (canal izquierdo) TP-R (canal derecho)	−7,7 dBV	
2				+10 dB contra el nivel de entrada del paso 1.		−2,7 dBV ±2,5 dB	